

PRIMARY 2

MATHEMATICS

Teacher's Guide

2019/2020

Term 1

FOREWORD

This is a pivotal time in the history of the Ministry of Education and Technical Education (MOETE) in Egypt. We are embarking on the transformation of Egypt's K-12 education system starting in September 2018 with KG1, KG2 and Primary 1 continuing to be rolled out year after year until 2030. We are transforming the way in which students learn to prepare Egypt's youth to succeed in a future world that we cannot entirely imagine.

MOETE is very proud to present this new series of textbooks, Discover, with the accompanying digital learning materials that captures its vision of the transformation journey. This is the result of much consultation, much thought and a lot of work. We have drawn on the best expertise and experience from national and international organizations and education professionals to support us in translating our vision into an innovative national curriculum framework and exciting and inspiring print and digital learning materials.

The MOETE extends its deep appreciation to its own "Center for Curriculum and Instructional Materials Development" (CCIMD) and specifically, the CCIMD Director and her amazing team. MOETE is also very grateful to the minister's senior advisors and to our partners including "Discovery Education," "Nahdet Masr," "Longman Egypt," UNICEF, UNESCO, and WB, who, collectively, supported the development of Egypt's national curriculum framework. I also thank the Egyptian Faculty of Education professors who participated in reviewing the national curriculum framework. Finally, I thank each and every MOETE administrator in all MOETE sectors as well as the MOETE subject counselors who participated in the process.

This transformation of Egypt's education system would not have been possible without the significant support of Egypt's current president, His Excellency President Abdel Fattah el-Sisi. Overhauling the education system is part of the president's vision of 'rebuilding the Egyptian citizen' and it is closely coordinated with the ministries of higher education & scientific research, Culture, and Youth & Sports. Education 2.0 is only a part in a bigger national effort to propel Egypt to the ranks of developing countries and to ensure a great future to all of its citizens.

WORDS FROM THE MINISTER OF EDUCATION & TECHNICAL EDUCATION

It is my great pleasure to celebrate this extraordinary moment in the history of Egypt where we launch a new education system designed to prepare a new Egyptian citizen proud of his Egyptian, Arab and African roots - a new citizen who is innovative, a critical thinker, able to understand and accept differences, competent in knowledge and life skills, able to learn for life and able to compete globally.

Egypt chose to invest in its new generations through building a transformative and modern education system consistent with international quality benchmarks. The new education system is designed to help our children and grandchildren enjoy a better future and to propel Egypt to the ranks of advanced countries in the near future.

The fulfillment of the Egyptian dream of transformation is indeed a joint responsibility among all of us; governmental institutions, parents, civil society, private sector and media. Here, I would like to acknowledge the critical role of our beloved teachers who are the role models for our children and who are the cornerstone of the intended transformation.

I ask everyone of us to join hands towards this noble goal of transforming Egypt through education in order to restore Egyptian excellence, leadership and great civilization.

My warmest regards to our children who will begin this journey and my deepest respect and gratitude to our great teachers.

Dr. Tarek Galal Shawki
Minister of Education & Technical Education

Contents

How to Use This Guide



The Mathematics teaching guide is designed to support teachers in the preparation and implementation of learning experiences by providing clear step-by-step instructions embedded with teacher input, instructional strategies, and classroom management techniques. In these learning experiences, students explore, play, use manipulatives, communicate and collaborate with colleagues, ask and seek answers to questions, and practice new skills and concepts.

This instructional approach aims to help students accomplish the following goals:

- Build numeracy
- Discover connections between and among math concepts
- Develop computational skills
- Acquire and use math vocabulary
- Build awareness of measurement concepts and geometric shapes
- Enhance critical thinking, problem solving, collaboration, and communication
- Increase enjoyment of math

If instructors have not used such a guide before, some practical advice follows:

- Read each chapter carefully. Make notes and highlight important details.
- Take particular note of sections labeled Term, Chapter, or Lesson Preparation. These sections include steps the teacher will need to complete in order to implement the learning experiences in the term, chapters, and lessons. Advance preparation will ease the instructor's workload and ensure successful learning experiences for students.
- Gather the necessary materials and make any preparations before implementing the lessons.
- Consider additional classroom management techniques necessary for your particular class and learning environment.

There is a Mathematics Student Book for Primary 2. The student book contains Apply pages and Math Journal pages.

Apply pages:

- Apply pages provide an opportunity for students to immediately practice the content they are learning in class.
- Students work independently, in pairs, and in small groups to explore, discover, and apply new skills and concepts.
- Students have multiple opportunities to check their work and the work of others. This kind of error analysis strengthens students' learning and deepens their understanding of mathematical concepts and connections.
- Apply pages are a wonderful resource for informally assessing student progress.

Math Journal pages:

- Students reflect on their learning through drawing, writing, and completing related math activities.
- The Math Journal pages provide opportunities for students to make connections between new content and previous learning and between formal math concepts and the real world.
- Like the Apply pages, the Math Journal pages are a great resource for informally assessing student progress and gathering information about students' current understanding and potential misconceptions.

The information you gather from the Apply pages and the Math Journal pages can be used to plan future instruction and differentiation (see Formative Assessment, below).

Take note of the following:

- What are students discovering or learning? (Content)
- What are students' misconceptions or misunderstandings? (Remediation)
- What are students being asked to do? (Activity)
- What is the teacher discovering about students? (Assessment)
- How could you adapt the lesson for the different abilities in your class? (Differentiation)

During and after implementing each lesson, reflect and make notes on what was successful as well as possible suggestions for improvement.

Planning with another teacher can often lead to greater implementation success as it provides an opportunity to discuss classroom expectations, management procedures, and strategies for differentiation according to the needs of students. It is suggested that teachers meet with other instructors at least weekly to plan and reflect.

Background

Building off the success of the initial year of Education 2.0 implementation, these instructional materials support the production of engaging and rigorous learning experiences for students and teachers. In this Teacher Guide, mathematics instruction is divided into Chapters. Each Chapter includes 10 days of instruction. The teaching of mathematics and the building of numeracy is very linear, with students learning new content in increments, and adding to their conceptual development and understanding slowly over time.

Lesson organization
Mathematics lessons are organized into three components:

- **Calendar Math (15-20 minutes)**
  - During this daily routine, students develop number sense, early place value concepts, counting fluency, and problem-solving skills. This segment also provides an opportunity for students to review and practice previously-learned skills and concepts.

- **Learn (35-40 minutes)**
  - During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.

- **Reflect (5-10 minutes)**
  - During this daily routine, students develop their ability to connect and express mathematical ideas.

The following components of Calendar Math should be taught every day, whether or not you are teaching a full mathematics lesson:
- Current month
- Current day
- Today's date: Today is (day of week) the (date) of (month) (year).
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

Some instructional considerations
Each section should be implemented every day. However, in some cases, students may need a few more minutes for one section and another section (or two) will have to be shortened for that day. The instructor should use personal judgment and knowledge of student needs to allocate lesson time.

Story problems and numbers are provided as examples. The instructor can use the story and numbers provided or create stories of their own. If the numbers in a story problem or sample problem are changed, be sure to limit the quantities to those identified in the indicators and outcomes (for example, "up to 1000").

The instructor is encouraged to incorporate familiar counting songs, poems, rhymes, math stories/literature, and math games and activities that are not included in this Teacher Guide.



Learn more about Education 2.0

Instructional Strategies

Many of the instructional strategies described below are woven throughout the teacher guide. These are not meant to be the only methods used in the classroom, rather are highlighted as best practices for engaging students in active, inquiry-based learning. As teachers and students gain familiarity with the strategies, instructors may wish to modify and personalize to suit the needs of each individual classroom.

For more strategies visit: tinyurl.com/Edu2-0strategies



INSTRUCTIONAL STRATEGY NAME	BRIEF DESCRIPTION
2 Stars and a Wish	This strategy is used to help students give positive feedback to peers. Two stars are two things the student likes about the work that is being evaluated. One wish is a suggestion to improve upon that work.
Ask 3 Before Me	Students ask three peers for assistance before asking the teacher. This strategy is used when students are working collaboratively to develop communication skills, encourage peer interactions, and decrease reliance on the teacher's support in large classrooms.
Attention Getting Signal	The teacher uses an explicit signal to get the attention of the class when they are talking in pairs or working in groups. There are many options for signals, and more than one can be used as long as students recognize it. Options include a clap pattern that students repeat, a simple call and response phrase, or a hand in the air (see: Hands Up). This strategy allows teachers to ask for students' attention without shouting or immediately disrupting student conversations.
Brainstorm	Students provide multiple answers for an open-ended question. This can be done as a whole class or in groups or pairs. The purpose of a brainstorm is to list many answers, not to critique whether answers are realistic, feasible, or correct. Once an initial broad list is made, students can go back to answers to prioritize or eliminate some options. This strategy promotes creativity and problem-solving.
Calling Sticks	Teacher writes the names of students on popsicle sticks and places them in a can/jar. To call randomly on students, the teacher pulls a stick from the jar. After calling on the student, the teacher places that stick into another can/jar so that student is not immediately called on again. This strategy helps teachers call on a wide variety of students and encourages all students to be ready with an answer.
Count Off	Teacher breaks students into groups by having students count off to a certain number. It is important to tell students to remember their number. For example, if the teacher wants three groups, the first student counts one, the next student says two, the next say three, and the next student starts over at one, and so on. When all students have counted, tell all the number ones to meet together, all the number twos, and then all the number threes. This strategy enables time-efficient grouping and reinforces conceptual number use.

INSTRUCTIONAL STRATEGY NAME	BRIEF DESCRIPTION
Fishbowl	Students gather around a teacher or group of students who are modeling something new. The students observe carefully as if they are watching fish in a bowl. This strategy promotes the full attention of students even when individual students are not actively participating in the demonstration.
Four Corners	Each of the four corners of the room corresponds to a possible opinion about a thought-provoking statement. The teacher may post a picture or a prompt in each corner of the room to represent the opinions/statements. Students walk to the corner that interests them or expresses their opinion to group with other like-minded students. This strategy allows students to express opinions and to prepare justifications with others who agree before presenting to the class.
Gallery Walk	As if in a museum, students walk past displays and respond to questions or prompts about the display. This strategy can be used in multiple ways, including to consider ideas posted on chart paper around the room or to view classmates' final products. This strategy encourages diversity of thought. When used at the end of a project, this strategy allows students to celebrate and take pride in their work while also honoring and responding to others' work.
Hands Up	The teacher holds a hand in the air to signal that students should stop what they are doing, stop talking, and look up at the teacher. When students notice the teacher's hand up, they also raise a hand to signal to classmates. This strategy is used as an attention-getting signal.
Hands Up, Pair Up	Students stand and walk around the room quietly with one hand raised in the air. The teacher says, "Stop—Pair Up." Students clap hands and stand together with a nearby student. Anyone with a hand still up needs as a partner. Students can easily find each other and pair up.
I Do, We Do, You Do	I Do: Teacher demonstrates or models an action to take place, such as reading a passage to the students. We Do: Students repeat the action with the teacher, such as re-reading a passage in unison. You Do: Student practices the learned action without the guidance of the teacher. This strategy supports students by modeling an expectation, allowing for low-pressure practice, then providing opportunities for independent practice.
I See Very Clearly	The teacher tells students he/she sees something. Students guess what it is as the teacher gives students clues. Students use observation and listening skills to guess the correct object. This strategy emphasizes the use and identification of object properties and characteristics.
Imagine That	The teacher describes a person, animal, plant, or situation for students to act out. Students imagine that they are the living thing or are in the situation and act out what happens. This can also be done in groups with a student, or rotating students, acting as the leader. This strategy promotes imagination and long-term memory. (See also: Charades to add a guessing element.)
Lean and Whisper	Students lean one shoulder in toward one neighbor to answer a question that has a one- or two-word (or short) answer. This strategy engages all students in answering a question without disrupting the flow of the classroom. This is used for KG1 students as a specific type of the Shoulder Partner strategy.
Model	The teacher or student demonstrates exactly how to complete a task. The rest of the class can ask questions before repeating what was demonstrated. This strategy allows the teacher to review any safety concerns or difficult aspects of a task, as well as share advice for task completion. This method should not be used for some inquiry activities, as it could over-influence the direction of student thinking.

INSTRUCTIONAL STRATEGY NAME	BRIEF DESCRIPTION
Number Sign	The teacher can check for understanding quickly by asking a question and giving students a choice of answers. Students hold up one, two, or three fingers in response to the question asked. The teacher quickly scans the fingers raised to get a sense of how many students are tracking the material.
Numbered Heads Together	This is a cooperative strategy that holds each member of a group accountable for learning/discussing material. Each student in the group is given a number. The teacher poses a question to the group. Students put their heads together to discuss the answer. The teacher then calls a number to identify a "spokesperson" to share the group's answer.
On the Fence	Each of the two sides of the room corresponds to a possible opinion about a thought-provoking statement. The teacher may post a picture or a prompt on each side of the room to represent the opinions/statements. Students walk to the side that interests them or expresses their opinion to group with other like-minded students. Students may also stay "on the fence" in the middle of the room if they are undecided. Students debate their opinion with evidence to persuade others in the room to agree with them. As students change their minds, they move to the corresponding area in the room.
One Stay One Stray	After working with partners, one person stays with the work product to present to other students while the second partner walks around and listens to peers in the class share. Then the two students switch roles. Using the strategy, both partners get to share their project and listen to others share.
Pass the Pen	Students work collaboratively in a group with one pen or pencil per group. The teacher poses a question or topic to groups. One student writes down an idea or answer, then passes the pen to the next group member. The pen continues to be passed around, allowing all students an opportunity to write at least once or twice. The strategy is used to brainstorm or activate prior knowledge on a topic and is helpful for encouraging all students to participate and share ideas.
Popcorn	Call on one student to answer a question. After the student has answered the question, they say "popcorn" and say the name of another student. It is now the turn of that student to answer the question, then pick a new student, and so on. If a student has responded, they should not be called upon a second time during the same Popcorn activity.
Relay Race	Divide the class into teams and have them line up single file. Call one student from each team to the front of the class. Ask students a question and the first to answer receives a point for their team. After answering, the student goes to the end of the line and the next student goes to the front of the room. A variation for math problems is for students to complete only one part of a math problem at a time.
Shake It Share It High Five	Students move around the classroom until the teacher signals to stop. Students then partner with a nearby student. Partners shake hands, share ideas or work products, then high five before moving around again to find a new partner. This strategy gets students out of their seats and moving, while also allowing them to share with classmates they do not sit near.
Shoulder Partners	Students lean and talk quietly with the person sitting next to them. Shoulder Partner can be used literally to just talk to the people sitting on either side, or it can be used for slightly larger groups of three or four with everyone's shoulders "touching." (This promotes the ability to speak softly—in sort of a huddle).
Snowball Fight	Students respond to a prompt using a half sheet of paper. The student crumples the paper up like a snowball and tosses it across the room. Students pick up a snowball that lands close to them, add their comment or answer, and crumple to toss again. Repeat as needed. The strategy encourages students to interact with the ideas of students who do not sit nearby in an anonymous manner.

INSTRUCTIONAL STRATEGY NAME	BRIEF DESCRIPTION
Think Aloud	The teacher models a process of thinking by speaking aloud what is thought. As an example, "I think I need more color here in my drawing." This strategy models for students the type of thinking they can use in an upcoming activity.
Think Time	Teacher allows a distinct period of silence so that students can process tasks, feelings, and responses. Allow students 15 to 30 seconds to think to themselves before calling on anyone to provide an answer to the class. This strategy is particularly helpful for shy or quiet students, as well as students who prefer to process content individually before contributing to a classroom or group conversation.
Thumbs Up	The teacher can quickly check for understanding using this strategy. Students hold thumbs up for agreement and thumbs down for disagreement to a question asked by the teacher. Thumbs up can also be used as a way for students to signal to a teacher that they are ready for an instruction.
Turn and Talk	Students turn "knee to knee" and "eye to eye" with a Shoulder Partner to discuss answers to long-form questions. This strategy allows students to discuss ideas, reflect on learning, and check each other's answers. This is used for KG1 students as a specific type of the Shoulder Partner strategy.
Venn Diagram	Teacher draws two or more large overlapping circles as a graphic organizer to show what is the same and different about multiple topics. Teacher notes similarities in the overlapping section of the circles, then summarizes differences in the respective parts of the circles that do not overlap. This strategy allows students to visually see and record similarities and differences.
Wait Time	Similar to the Think Time strategy, the teacher waits at least seven seconds after asking a question to the whole class or after calling on a student to respond. This provides time for students to think independently before an answer is given out loud.
Whisper	The teacher can provide whole class verbal processing time by allowing students to respond to a question by whispering the answer into their hands. This strategy prompts every student to attempt an answer, with no social-emotional recourse if their answer is wrong.
Zoo Can	Similar to Calling Sticks, the teacher pulls a name stick from the can and the students must count backward while acting like an animal. This can be used for relevant content instruction or as a quick break when students need to move and laugh before finishing a task or moving on to a new task.

Formative Assessment

What is formative assessment?
The term assessment often brings to mind exams. Exams can be effective at summarizing learning. After a student learns material for a certain amount of time, an exam measures how much the student has learned, retained, and can apply. Formative assessment encompasses strategies used in the classroom to find out if and how much students are learning along the way, so that instruction can be adjusted.

Why embed formative assessment in instruction?
Formative assessment is a tool that supports responsive teaching. Embedding formative assessment provides teachers with evidence about how much students are learning, retaining, and applying. A teacher who frequently seeks and receives feedback about how much progress students are making toward learning goals can adjust instruction to respond to misconceptions, misunderstandings, and gaps in students' ability to apply learning.

How does embedding formative assessment improve learning?
The following table (Wiliam, 2011) provides an overview of five strategies that teachers, peers, and students can use to give and receive evidence of learning throughout the learning process.

<table>
<tr><th></th><th>WHERE THE LEARNING IS GOING</th><th>WHERE THE LEARNER IS RIGHT NOW</th><th>HOW TO GET THERE</th></tr>
<tr><td>TEACHER</td><td rowspan="3">Clarifying, sharing, and understanding what we intend for students to learn and the criteria for success</td><td>Eliciting evidence of learning</td><td>Providing feedback that moves learning forward</td></tr>
<tr><td>PEERS</td><td colspan="2">Activating learners as instructional resources for one another</td></tr>
<tr><td>LEARNER</td><td colspan="2">Activating learners as owners of their own learning</td></tr>
</table>

Wiliam, Dylan. Embedded Formative Assessment. Bloomington: Solution Tree Press, 2011.

The first essential step is to identify (and share with students) the desired learning outcomes, or "where the learning is going." Once learning goals are established, teachers, peers, and students themselves can check in on "where the learner is right now," or how much progress is being made toward the goals. Rather than assessing whether or not a student has sufficiently learned content after the fact, formative assessment practices provide feedback so that teaching and learning ("how to get there") can be adjusted to better obtain the agreed-upon goals.

What does embedding formative assessment look like in the classroom?
Formative assessment often occurs through classroom discussions and tasks that ask students to explain and justify their thinking. If individual students struggle to understand or apply a concept, a teacher can differentiate instruction or provide peer support to meet that students' needs. When many students exhibit evidence of misunderstanding or gaps in knowledge or skills, a teacher can decide to review, reteach, or present a new approach to achieving the learning goals.

Lesson Preparation Template for Education 2.0

Grade (P1)Class: ________ Date: ________ Present: ________ Absent: ________ Students' total number: ________

Content / Windows	Theme	Chapter	Lesson	Learning Objectives	Activities	Teacher's Choices						
						Teacher guide Pages	Teaching strategies	Questions/ Modeling	Digital esources	Differentiation / Challenges	Maths Journal	Enrichment

Teacher's Self Reflection	☐	Exceeds expectations	☐	Meets expectations	☐	Sometimes Meets Expectations	☐	Below Expectations	☐

Grade (P1)Class: ________ Date: ________ Present: ________ Absent: ________ Students' total number: ________

Content / Windows	Theme	Chapter	Lesson	Learning Objectives	Activities	Teacher's Choices						
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Primary 2 Term 1 Mathematics Scope and Sequence

PRIMARY 2	CHAPTERS 1-3	CHAPTERS 4-6
A. COUNTING AND CARDINALITY		
Instruction of Counting and Cardinality is completed by the end of Primary 1.		
B. OPERATIONS AND ALGEBRAIC THINKING		
1. Represent and solve problems involving addition and subtraction.	X	X
a. Explain Commutative Property of Addition of numbers up to 1,000 (does not need to know the name of the property).		X
b. Fluently add and subtract within 20 using mental strategies.	X	X
c. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	X	X
d. Solve addition and subtraction problems within 100 with one unknown in any position within the equation.	X	X
e. Recall all sums of two one-digit numbers.	X	X
2. Work with equal groups of objects to gain foundations for multiplication.		X
a. Determine whether the number of total objects in a group (up to 20) is even or odd.		X
C. NUMBERS AND OPERATIONS IN BASE TEN		
1. Work with numbers to gain foundations for place value.	X	X
a. Understand that the three digits of a three-digit number represent values of hundreds, tens, and ones.	X	
b. Determine the place value and the value of digits in numbers.	X	
c. Count by 5s, 10s, and 100s within 1000.	X	
f. Read and write numbers to 1000 using numerals and expanded form.	X	X
g. Read and write numbers 1-9 and multiples of 10 through 100 in word form (alone, without sentences/context).	X	
h. For numbers 11-19 and non-multiples of 10 through 99, identify the numeral from the word form (written by the teacher; alone, without sentences/context).	X	
i. Use place value to compare two numbers up to 1,000	X	X
j. Use the symbols >, =, and < to express comparisons.	X	X
k. Order a set of up to 5 numbers with values up to 1,000 from least to greatest or greatest to least.	X	X

PRIMARY 2	CHAPTERS 1-3	CHAPTERS 4-6
2. Use place value understanding and properties of operations to add and subtract multi-digit numbers.	X	X
a. Apply a variety of problem-solving strategies based on concrete models or drawings, place value concepts, properties of operations, and/or the relationship between addition and subtraction and relate the strategy to a written method.	X	X
b. Fluently add and subtract two 2-digit numbers with or without regrouping.		X
c. Add up to four 2-digit numbers with regrouping.		X
f. Use estimation strategies in problem solving, such as mentally adding and subtracting 10 or 100 (within 1000).		X
g. Explain why addition and subtraction strategies work, using place value and the properties of operations.		X
D. MEASUREMENT AND DATA		
1. Measure and estimate length and mass in metric units.		X
a. Measure lengths of objects in centimeters or meters. 1. Estimate lengths using centimeters and meters to benchmark lengths. (For example, about 1, 10, 50, 100 centimeters.) 2. Measure to determine how much longer or shorter one object is than another, expressing the difference in centimeters or meters. 3. Explain the relationship between centimeters and meters.		X
b. Measure masses of objects in kilograms. 1. Estimate mass using kilograms to benchmark lengths. (For example, about ½, 1, 5, or 10 kilograms.) 2. Measure to determine how much heavier or lighter one object is than another, expressing the difference in kilograms.		X
2. Solve problems involving measurement and estimation of length and mass.		X
a. Solve one-step word problems involving addition or subtraction of length or mass.		X
3. Work with time and money.		X
a. Tell and write time from analog and digital clocks to the hour, half-hour, and quarter-hour using a.m. and p.m.		X
b. Explain that a day equals 24 hours.		X
4. Represent and interpret data.	X	
a. Organize data with up to four categories into scaled bar and pictographs (scales limited to 2, 5, 10).	X	
b. Solve simple put-together, take-apart, and compare problems using data presented in a bar graph or pictograph.	X	
E. GEOMETRY		
1. Identify and describe shapes; reason with shapes and their attributes.		X
a. Identify the attributes of two-dimensional shapes: triangles, quadrilaterals, pentagons, hexagons.		X
b. Identify the attributes of three-dimensional shapes: square-based pyramids, cones, cylinders, spheres, cubes, and rectangular prisms (cuboids).		X
c. Identify and draw shapes having specified attributes, such as a given number of corners (vertices) or sides.		X

PRIMARY 2

Mathematics

WHO AM I?

Chapter 1

Lessons 1 to 10

Chapter Overview

Who Am I?

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking and writing about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 1 to 10, students will work toward the following learning indicators:

B. OPERATIONS AND ALGEBRAIC THINKING:

1.b. Fluently add and subtract within 20 using mental strategies.
1.e. Recall all sums of two one-digit numbers.

C. NUMBERS AND OPERATIONS IN BASE TEN

1.j. Use the symbols >, =, and < to express comparisons.
1.k. Order a set of up to 5 numbers with values up to 1,000 from least to greatest or greatest to least.

D. MEASUREMENT AND DATA

4.a. Organize data with up to four categories into scaled bar graphs and pictographs (scales limited to 2, 5, 10).
4.b. Solve simple put-together, take-apart, and compare problems using data presented in a bar graph or pictograph.

CH 1 Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
1	**Students will:** • Participate in Calendar Math activities. • Collect and interpret data. • Create a class birthday bar graph.
2	**Students will:** • Participate in Calendar Math activities. • Collect and interpret data. • Create a favorite day of the week bar graph.
3	**Students will:** • Participate in Calendar Math activities. • Interpret data in a bar graph. • Use the symbols >, =, and < to express comparisons.
4	**Students will:** • Participate in Calendar Math activities. • Collect and interpret data. • Create a bar graph about siblings. • Order a set of numbers from least to greatest.
5	**Students will:** • Participate in Calendar Math activities. • Interpret data in a bar graph. • Solve put-together and take-apart problems about bar graph data.
6	**Students will:** • Participate in Calendar Math activities. • Skip count by 2s. • Interpret a bar graph with a scale of 2.
7	**Students will:** • Participate in Calendar Math activities. • Skip count by 10s. • Interpret a bar graph with a scale of 10.
8	**Students will:** • Participate in Calendar Math activities. • Collect data about the sums of 2 six-sided dice. • Create a bar graph to represent the collected data. • Interpret data in a bar graph.
9	**Students will:** • Participate in Calendar Math activities. • Interpret a pictograph with a scale of 2. • Solve put-together and take-apart problems about pictograph data.

LESSON	INSTRUCTIONAL FOCUS
10	**Students will:** • Participate in Calendar Math activities. • Create a bar graph using data from a pictograph. • Interpret data in a bar graph with a scale of 2.

Term Preparation for the Teacher

Note to the Teacher: The following items will be used daily in some form throughout your theme. Careful preparation of them in advance is necessary for successful implementation of daily lessons.

- Create a Calendar Math area in your classroom. During each math lesson, gather the students to the Calendar Math area for instruction and conversation, if possible. Although the teacher leads Calendar Math instruction at the beginning of the year, students gradually take on more independence and leadership as they grow more confident over time. The Calendar Math area should include the following:
  - Large calendar with current month listed at the top
    - May be a prepared calendar (such as a store-bought, 12-month calendar) or a reusable teaching calendar with spaces to write or attach the days of the week and numbers for each day.
  - The names of all the months
  - 120 chart to 120, beginning with 1 in the bottom left square
  - A place to write the date each day
  - A place to write the total number of school days so far
  - Three "pockets" made from paper, paper bags, paper boxes, or paper/plastic cups, stapled in a row or attached below the calendar.
    - Label the first one: Ones
    - Label the second one: Tens
    - Label the third one: Hundreds
  - Counting straws that can be bundled (Example: straws, popsicle sticks, or chenille stems)
  - 10-12 rubber bands
  - If possible, include the following:
    - A place to write special holidays or birthdays





Note to the Teacher: Decide on where you will store student books in your classroom. It should be a place where you or your students can get to them quickly. Some days, you may wish to do a quick check of students' books to determine who may need extra instruction or help. Other days, you may wish to do a more formal review of students' work.

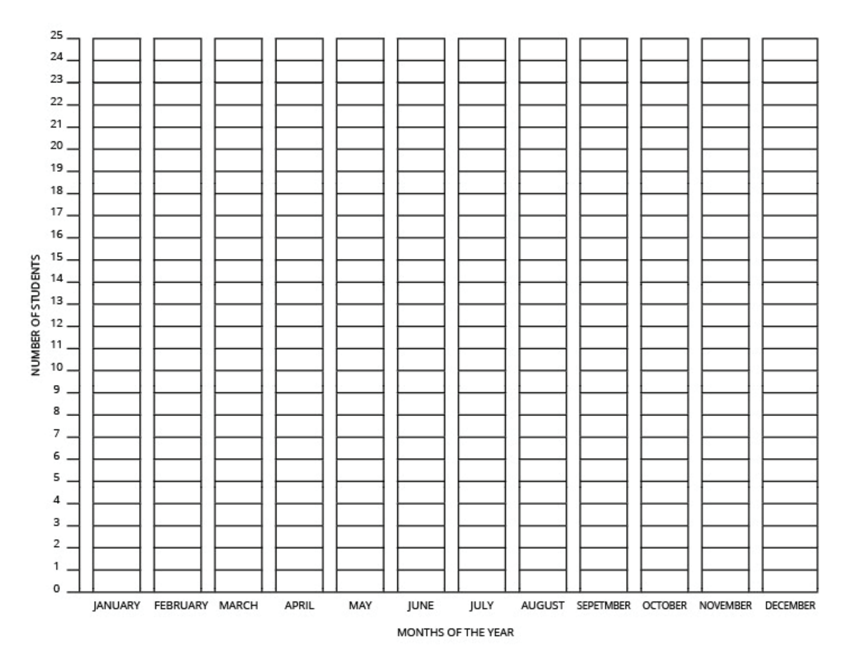
Term Preparation for the Teacher

- For many lessons in this chapter, you will need a large format of the graph students are creating or analyzing. It may be helpful to preview the chapter and create the graphs in advance.

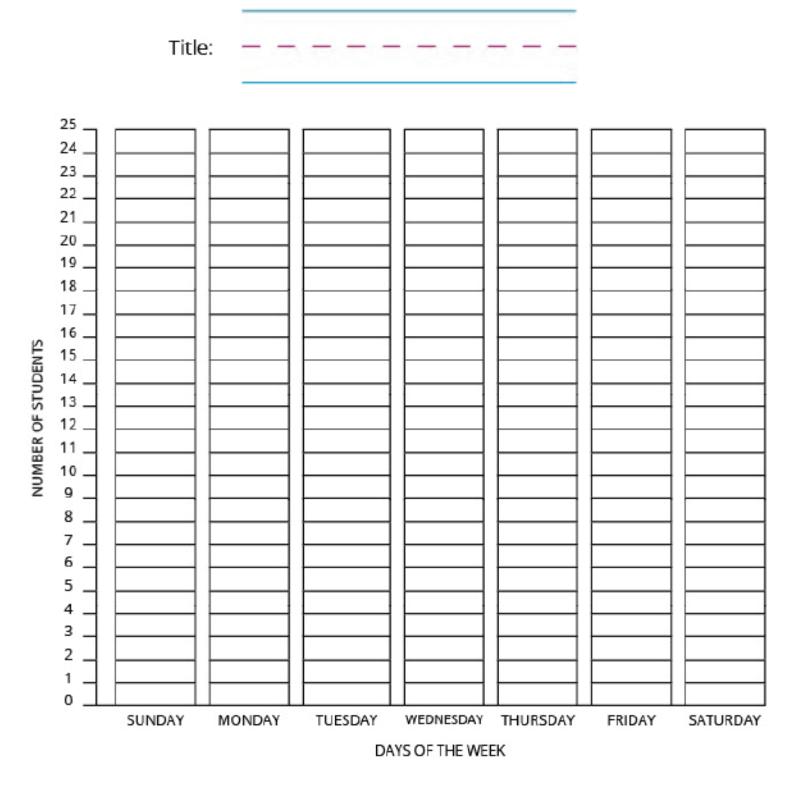
- In this chapter, students will make and interpret a variety of graphs. They will learn that graphs must be labeled on both the vertical and horizontal sides (axes) and there must be a title. It is not necessary to introduce the terms axis and axes yet, but it is important that students understand the terms horizontal and vertical and that graphs have both sides in a bar graph. Pictographs are slightly different, but still have labels and a title. Students in Primary 2 are also expected to create and interpret graphs with up to 4 categories. That is a minimum expectation and students who are ready for a challenge can (and should) be asked to work with more categories. However, they should only be assessed on creating and interpreting graphs with up to 4 categories. Adjust the number of categories in this chapter based on the needs of your students, if necessary.
  - When drawing a scaled bar graph, it is important that the numbers along the axes are written outside of the graph so that students are able to see the quantities clearly. Also, make sure the numbers align to the lines of the graph in case a quantity falls between the lines. For example, if the scale is 2, and the data point is 7, the bar would stop in between 6 and 8.
  - Finally, a pictograph is a graph that shows numerical information by using picture symbols or icons to represent data sets. To represent ½ of a data set, ½ of the picture is drawn. There is always a key to help students understand what each picture represents.
  - Wherever possible, consider incorporating songs, poems, and stories or books that include content or concepts that connect to your mathematics instruction. Using literature in math class is a great way to find data, build connections between the real world and mathematics, and strengthen community throughout the year.

Chapter Preparation for the Teacher

- For Lesson 1:
  - Create a large copy of the bar graph below. Leave the title blank so students can select an appropriate title based on the data they are collecting.
    * Consider displaying the graph permanently so it can be referenced throughout the year.

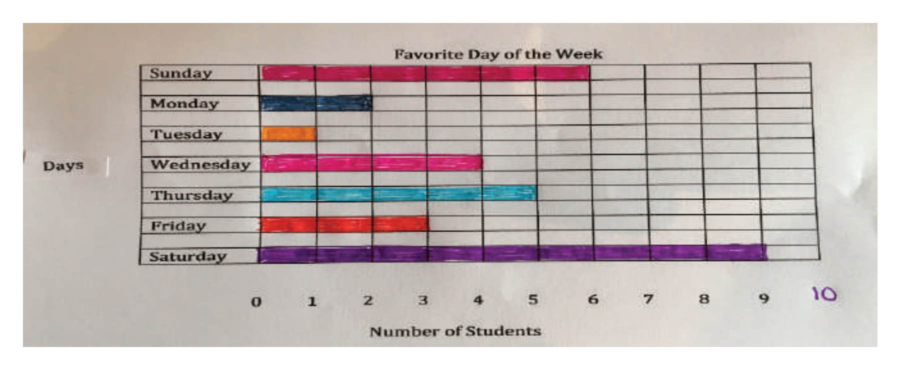


- For Lesson 2
  - Create a large copy of the Favorite Day of the Week bar graph below. Leave the title blank so students can select an appropriate title based on the data they are collecting.



- For Lesson 3:
  - Create a horizontal version of the Favorite Day of the Week bar graph from Lesson 2 (example below). (Transfer the same information into a horizontal format.)

Note to the Teacher: This is just an example of a horizontal graph. You will make one based on your own class data.

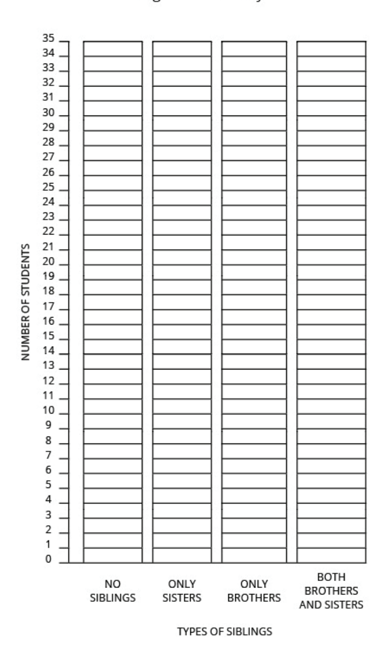


  - Create a poster showing the greater than (>), less than (<), and equal to (=) symbols.

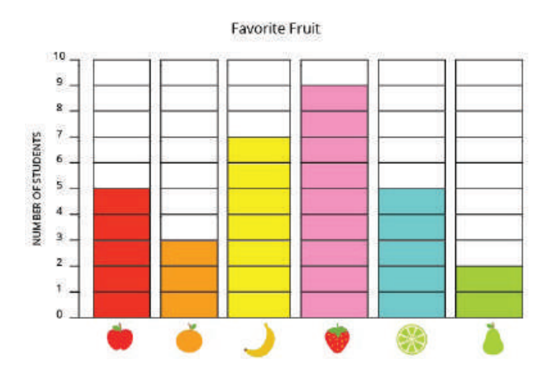
- For Lesson 4:
  - Create a large copy of the Siblings in Our Family table as shown below.

SIBLINGS IN OUR FAMILY	
NO SIBLINGS	
ONLY SISTERS	
ONLY BROTHERS	
BOTH BROTHERS AND SISTERS	

- Create a large copy of the Siblings in Our Family bar graph as shown below.



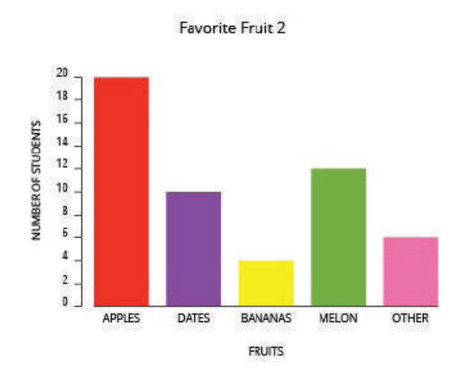
- For Lesson 5:
    - Create a large copy of the Favorite Fruit graph as shown below.



    - Write the following questions about the graph data on the board or on chart paper:
      1. How many more people liked strawberries than pears?
      2. How many people all together liked kiwi, apples, and oranges?
      3. How many more people liked strawberries than oranges?
      4.How many people liked apples, bananas, and pears?
      5.How many people in total shared which fruit they liked best?

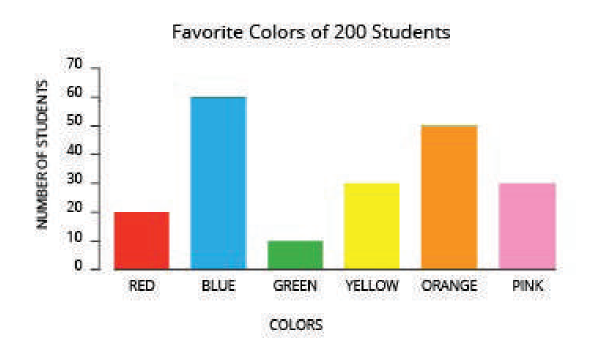
    - If students will need them, create sets of 20 counters (one set per pair of students). Possible counters include dried beans or pasta, buttons, or small stones.

- For Lesson 6:
    - Create and display a large copy of the Favorite Fruit 2 bar graph as shown below.

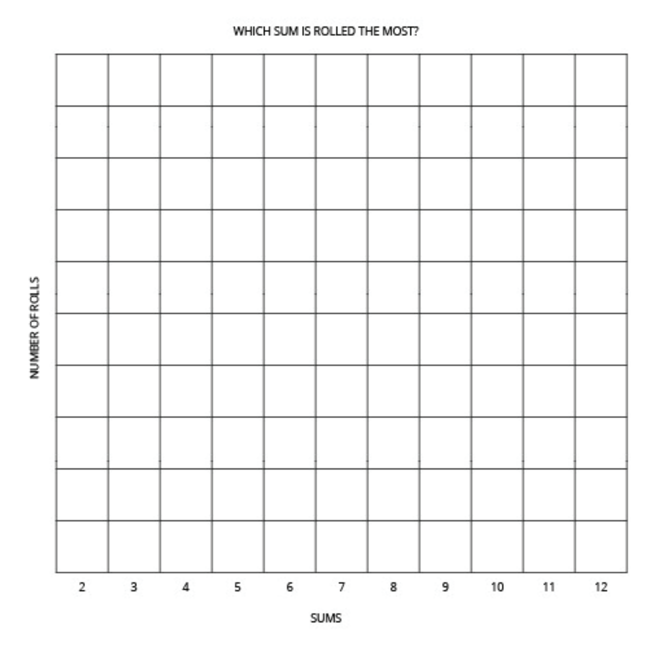


- Write the following questions about the graph data on the board or on chart paper:
  1. How many students liked apples best? How do you know?
  2. Which fruit is liked the least? How many people like that fruit?
  3. Which two fruits did people like the best? How do you know?
  4. How many people liked some other kind of fruit that was not listed? How do you know?
  5. How many more students liked apples than dates? How do you know?

- For Lesson 7:
  - Create and display a large copy of the Favorite Colors of 200 Students bar graph as shown below.



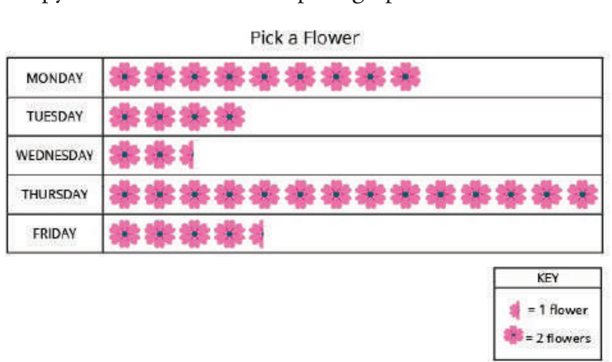
- For Lesson 8:
  - Create a large copy of the Which Sum Is Rolled the Most? bar graph as shown below.



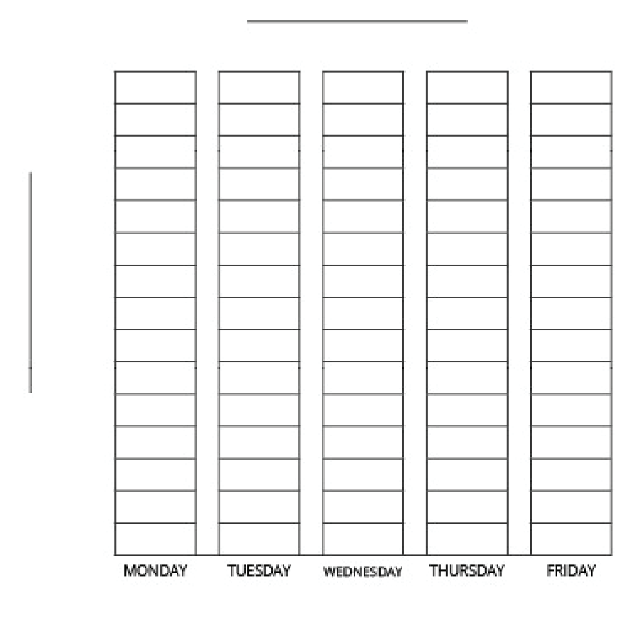
  - Have a set of six-sided dice for each pair of students.

Note to the Teacher: If dice are not available, see the Six-Sided Die-Number Cube Net Blackline Master. You will need scissors, a marker, and clear tape to create the cubes.

- For Lesson 9:
  - Create a large copy of the Pick a Flower pictograph as shown below.



- For Lesson 10:
    - Create and display a blank bar graph large enough to incorporate the data from the Pick a Flower pictograph. Do not add the title, axis labels, or scale. Students will help you do that during the lesson.

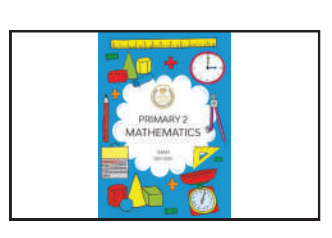


Materials Used

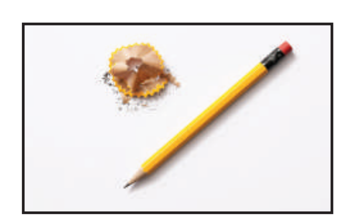
Calendar Math area



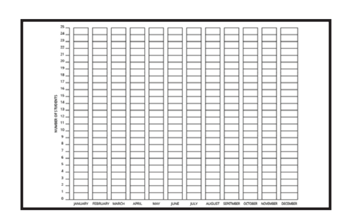
Student book



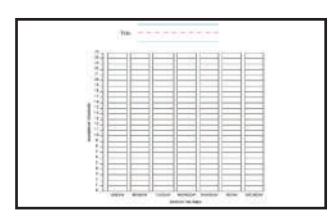
Pencil



Blank birthday bar graph



Favorite day bar graph



Crayons



Colored pencils



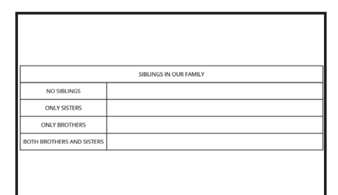
Colored markers



Poster of less than, greater than, equal to signs

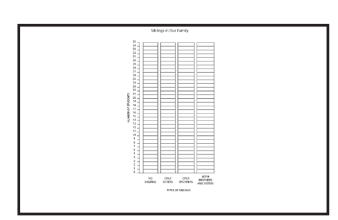


Sibling data collection table

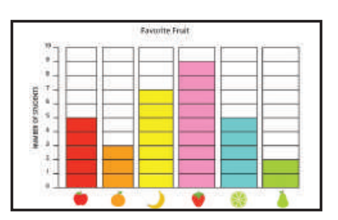


SIBLINGS IN OUR FAMILY	
NO SIBLINGS	
ONLY SISTERS	
ONLY BROTHERS	
BOTH BROTHERS AND SISTERS	

Graph of siblings table



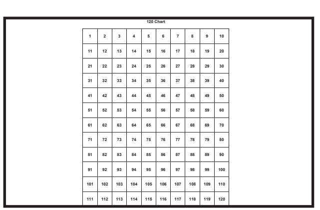
Favorite fruit graph



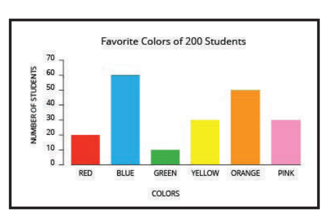
2 Six sided dice



120 Chart



Favorite color bar graph



Questions about bar graph

Set of 20 cards

Bar graph

Pictograph

Lesson 1 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Collect and interpret data. • Create a class birthday bar graph.	• Bar graph • Calendar • Columns • Data • Horizontal • Rows • Vertical	• Calendar Math area • Student book and pencil • Large blank birthday bar graph (untitled)

LESSON PREPARATION

Create and display a large copy of the birthday bar graph (untitled). See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Today you will be introducing the daily Calendar Math routine to students. As students gain more confidence with the routine over the next few weeks, you will gradually give them more responsibility for leading the class through each step.

1.TEACHER SAY: **Today is a great day. It is the first day of school. We are going to learn so much in math this year. We will learn about adding and subtracting numbers, shapes, money, telling time, and much more. The first couple of weeks, we will review some addition and subtraction strategies you learned last year. Let's get started with Calendar Math.**

Some of you may have some experience with Calendar Math from last year. When I say go, I want you to Turn and Talk to your Shoulder Partner and tell them what you remember about calendars. What are they used for? Why are they important? What do they show us? Go.

 STUDENTS DO: Talk to their **Shoulder Partner** to share what they know about calendars.

TEACHER DO: Walk around the classroom and listen in as the students share what they remember about calendars.

TEACHER SAY: **In math, we will begin each day talking about the calendar. Calendars remind us of special days like your birthday and holidays. During Calendar Math, we will discuss what day it is, learn the days of the week and months of the year, and count how many days we have been in school. We will learn about numbers by finding patterns in the 120 Chart.**

Note to the Teacher: Each day you will point out the name of the month, day, and year. This repetition will help students learn the names of the months of the year and the names of the days of the week.

2.TEACHER SAY: **It may have been a while since you have seen a calendar, so let's go over the different parts of a calendar today.**

TEACHER DO: Point to the month at the top of the calendar.

TEACHER SAY: **This part of the calendar tells us the month we are in. We are in the month of (current month). Please say it with me.**


STUDENTS DO: Repeat the month aloud.

TEACHER DO: Point to the days of the week on the calendar.

TEACHER SAY: These are the days of the week. Let's see how many you remember. Say them with me as I point.

TEACHER DO: Point to the days of the week as the students say them aloud.

 **STUDENTS DO:** Say the days of the week.

TEACHER SAY: The numbers on the calendar tell us how many days are in the month. Let's count all the numbers together and stop on today's date.

TEACHER DO: Point to the numbers as the students say them aloud. Stop on today's date.

 **STUDENTS DO:** Say the numbers as the teacher points.

TEACHER SAY: We can put it all together to say today's date. We start with the day of the week, then the date, then the month, and then the year. Today is (day) (number date) of (month) (year).

TEACHER DO: Ask students to repeat the date.

 **STUDENTS DO:** Repeat the date.

TEACHER SAY: We have been in school for 1 day.

TEACHER DO: Take 1 counting straw and place it in the Ones pocket as you count aloud.

TEACHER SAY: One. Tomorrow, one of you will place the straw in the pocket. (Note: You may use any counting straw you like, as long as it can be bundled and placed in the pockets you created.)

TEACHER DO: Circle 1 on the 120 chart.

TEACHER SAY: I am putting a circle around the number 1 on the 120 chart. Count 1 with me when I point to the circled number.

 **STUDENTS DO:** Count 1 when the teacher points.

TEACHER SAY: Today is (day) the (date) of (month) (year). Great job. We will practice our Calendar Math routine for a couple of weeks. Soon I will ask you to help lead Calendar Math, so be sure to pay careful attention.

 **STUDENTS DO:** Return to seats.



Learn (40 minutes)

Directions

Note to the Teacher: Have a large class graph posted on the board. Keep it so you can refer to it throughout the school year in future lessons.

1.TEACHER DO: Post the premade poster for the birthday graph on the board.

TEACHER SAY: Today is our first day of math together. Each day we start with the Calendar and do a similar routine. Then we move into the Learn part of our math class. During this time, we will learn and practice many different math concepts together, with partners and on your own. Today we are going to start by getting to know a little bit about each other and when we celebrate our birthdays. To do that we are going to create a bar graph.

On the board you can see an example of a graph. Turn and Talk to your Shoulder Partner about what you notice. Who can remind us what a Shoulder Partner is? Raise your hand.

STUDENTS DO: Raise hands to volunteer. Selected students explain what a **Shoulder Partner** is.

TEACHER DO: Review **Shoulder Partner** with the group if necessary.

TEACHER SAY: Good job. Now turn to your Shoulder Partner and share what you notice about this graph.



STUDENTS DO: Turn to **Shoulder Partner** and share what they notice about the graph.

TEACHER DO: Use **Calling Sticks** to choose 2 or 3 students to share.



STUDENTS DO: Selected students share observations.

2.TEACHER SAY: Nice job. At the bottom of the graph are the months of the year. Up the side of the graph there are numbers.

TEACHER DO: Point to the columns, the rows, the month labels on the bottom axis, and the numbers up the side axis.

TEACHER SAY: This is called a BAR GRAPH. This graph has a column for each month of the year and then an empty column. That is because in a bar graph, the bars have a space between them. In a bar graph, each category gets its own bar so there will be space between the columns. There are different types of graphs, but all graphs help us to show data. DATA is another word for information. Who has ever seen a graph before? Give me a Thumbs Up.



STUDENTS DO: Give a **Thumbs Up** to indicate that they have seen graphs.

TEACHER SAY: Great. Graphs are tools that help us compare pieces of data, or information. Today we will collect some information about each of our birthdays and put it on this bar graph to compare and discuss.

This graph has a COLUMN for each month of the year. A COLUMN goes up and down on this graph. On this graph, each month forms a column that is VERTICAL. VERTICAL means up and down.

TEACHER DO: Point to the column for January and show how the column goes up and down. Model a few times using different columns, repeating the words "column" and "vertical."

TEACHER SAY: This graph also has ROWS. ROWS go across the graph, or HORIZONTALLY.

TEACHER DO: Point to a few different rows and show how they go across the graph, repeating the words "row" and "horizontal."

3.TEACHER SAY: Now that we understand a little about the rows and the columns in this graph, let's collect some data. I am going to say the name of a month. If your birthday is in that month, you will stand up, and I will color in one box on the graph to show that one person was born in that month. When we are finished, we will be able to compare information about our birthday months and learn a little about each other. Ready? Stand up if you were born in January.



STUDENTS DO: Stand up when the teacher says their birthday month.

TEACHER DO: Color in one bar above the month for each student who stood up with a birthday in said month. Continue until you have completed all the months of the year and all the students.

TEACHER SAY: Do you see all the colored in boxes on the graph above each month? That is our data. The boxes create a bar that shows us how many students have birthdays in each month.

TEACHER DO: Demonstrate. Count aloud the number of students in a given month, pointing to

the boxes as you count. Count for a few different months that have different numbers of students having birthdays.

 STUDENTS DO: Observe as the teacher counts the data.

4. TEACHER SAY: **Another way we can see how many students have a birthday in a given month is to look at the side of the graph. Give me a Thumbs Up if you see the numbers written along the side.**

 STUDENTS DO: Give a **Thumbs Up** to show they see the numbers.

TEACHER SAY: **These numbers help us to read the graph. There is a 1 written along the vertical side at the top of the first box or bar, a number 2 after two bars, and so on. Remember that vertical means up and down.**

TEACHER DO: Point to a bar and then show the number along the side (vertical) axis to help students see that each box represents 1 person on this graph.

TEACHER SAY: **Instead of counting each box, I could look at the top of the bar that is colored in for (pick a month) and move across the ROW to the numbers on the side. Remember a ROW goes across. Rows are horizontal. Where the bar stops is how many people have birthdays in the month.**

TEACHER DO: Pick a month with more than 2 birthdays and point to the top of the colored bar. Move your finger from the top to the vertical axis, pointing to the number.

TEACHER SAY: **Whisper into your hand how many students have birthdays in _____ (name of chosen month).**

 STUDENTS DO: **Whisper** number of students that have birthdays into their hand.

TEACHER SAY: **Nice job. _____ (number) students have birthdays in _____ (chosen month).**

5. TEACHER SAY: **The last thing that we need to do on our class graph is add a title so that other people will know what our graph is showing. They can read the numbers on the vertical side and the months on the horizontal side, but there is no title yet. What would be a good title for this graph? Raise your hand if you have an idea for a title.**

 STUDENTS DO: Raise hand to volunteer. Selected students share ideas for a title.

TEACHER DO: Choose one title, such as Class Birthday Graph or Our Birthday Months.

TEACHER SAY: **Great. Now we are done. We have collected some data about when each of us has a birthday, we put the data on our bar graphs, and we gave it a title. We can use this graph to compare the data. Turn to your Shoulder Partner and talk about what you notice about birthdays in our class. For example, which month has the most birthdays? Which month has the fewest? How many people have birthdays in the month that your birthday falls?**

TEACHER DO: Give 2 to 3 minutes of **Wait Time**.

 STUDENTS DO: Turn to **Shoulder Partner** and discuss what they observe about the graph.

TEACHER DO: Use **Calling Sticks** to select students to share something they noticed about the graph.

 STUDENTS DO: Selected students share what they or their partner noticed about the birthday graph.

6. TEACHER SAY: **Great observations about the bar graph we created today. We will look at this graph some more later, and it will stay in the class so we can use it to see who has birthdays each month.**

Reflect (5 minutes)

Directions

Note to the Teacher: Students will have the opportunity each day to share with a partner or the class what they have learned during the lesson. Some days they will record their thoughts on the Math Journal pages that are located in the student book. Reflecting on what students have learned and sharing it with others helps make the learning concrete. Students will learn from hearing how other students think about math concepts and gain confidence in their understanding of math concepts, as well as practice writing about their mathematical thinking.

1.TEACHER SAY: **Today was our first day of math class. We started the class looking at the calendar and then made a birthday graph together to see when each of us has a birthday.**

At the end of each math class we have a few minutes to share. Sometimes we will reflect and share with a partner or with the whole group. Sometimes we will use the Math Journal pages in our student books to record our thoughts, ideas, and new learning.

Today, I want you to think about something you learned today in math or something that you enjoyed about math class. It can be about the calendar or about the birthday graph. I will give you a few minutes of thinking time. Give me a Thumbs Up when you are ready.

 STUDENTS DO: Think for a moment and give a **Thumbs Up**.

TEACHER DO: After a few minutes, use **Calling Sticks** to ask 3 or 4 students to share what they learned today in math.

 STUDENTS DO: Selected students share their thinking with the class.

TEACHER SAYS: **What a fun first day of math class. I cannot wait for tomorrow. Give your Shoulder Partner a high five.**

 STUDENTS DO: High Five their **Shoulder Partners**.

Lesson 2 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Collect and interpret data.
- Create a favorite day of the week bar graph.

LESSON PREPARATION

Display the large birthday bar graph from Lesson 1 where all students can see it.

Create and display a large copy of the favorite day bar graph (untitled). See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Bar graph
- Calendar
- Categories
- Column
- Data
- Horizontal
- Row
- Vertical

MATERIALS

- Calendar Math area
- Student book and pencil
- Large birthday bar graph from Lesson 1
- Large copy of the favorite day bar graph (untitled)
- Crayons, colored markers, or colored pencils



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1.TEACHER SAY: **In math, we will begin each day talking about the calendar. During Calendar Math, we will discuss what day it is, learn the days of the week and months of the year, and count how many days we have been in school. Calendars remind us of special days like your birthday and holidays. Who can show us where it says the current month? Raise your hand if you know.**

 STUDENTS DO: Raise hands to volunteer. Selected student points to the month.

TEACHER SAY: **Yes, we are in the month of (current month). Please say it with me.**

 STUDENTS DO: Repeat the month aloud.

TEACHER SAY: **Raise your hand if you would like to point to the days of the week.**

 STUDENTS DO: Raise hands to volunteer. Selected student points to the days of the week.

TEACHER SAY: **Yes, those are the days of the week. Let's see how many you remember. Say them with me as I point.**

TEACHER DO: Point to the days of the week as the students say them aloud.

 STUDENTS DO: Say the days of the week.

TEACHER SAY: **The numbers on the calendar tell us how many days are in the month. Raise your hand if you can point to today's date on the calendar.**

STUDENTS DO: Raise hands to volunteer. Selected student points to today's date on the calendar.

TEACHER SAY: We can put the day, date, month, and year together to say today's date. Today is (day) (number date) of (month) (year). Now you say it.

 **STUDENTS DO:** Repeat the date.

2.TEACHER SAY: We have been in school for 2 days. We are going to keep track of how many days we have been in school a couple of different ways. This is the first way.

TEACHER DO: Use the **Calling Sticks** to select a student to put 1 counting straw in the Ones pocket. Take out both counting straws and have the student count them aloud.

 **STUDENTS DO:** Selected student places counting straw in the Ones pocket and counts the straws aloud.

TEACHER SAY: We will also keep track on our 120 chart. Yesterday I circled 1, for one day of school. What number will we circle today?

 **STUDENTS DO:** Call out together: 2.

TEACHER DO: Use **Calling Sticks** to select a student to circle 2 on the 120 Chart.

 **STUDENTS DO:** Selected student circles 2 on the 120 Chart.

TEACHER SAY: Let's count the circled numbers together. I will point to each number.

 **STUDENTS DO:** Count aloud to 2 with the teacher.

TEACHER SAY: Great job. We will practice our Calendar Math routine for a couple of weeks. Then I will begin to ask you to help lead Calendar Math, so be sure to pay careful attention.

 **STUDENTS DO:** Return to seats.



Learn (40 minutes)

Directions

Note to the Teacher: Today students will create their own bar graphs about their favorite day of the week and discuss the parts of a graph—a label for each axis, a title, and numbers to show the scale for the graph.

1.TEACHER SAY: Yesterday we made a class bar graph about our birthdays. We are going to start today looking at that graph again and answering some questions about the data. Listen carefully so you can answer questions if I call on you.

TEACHER DO: Point to the birthday graph so students can see. Use **Calling Sticks** to select students to answer questions about the graph, such as the questions below. Ask questions based on the needs of the group.

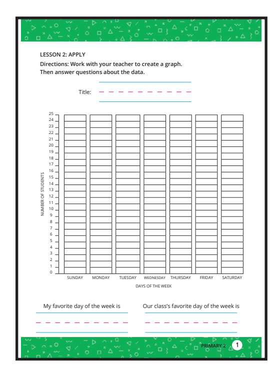
TEACHER SAY:

- **How many students have birthdays in January? February? (and so on)**
- **Which month has the most birthdays? How can you tell?**
- **Which month has the fewest birthdays? How can you tell?**
- **Are there any months that have the same number of birthdays? How can you tell?**

 **STUDENTS DO:** Selected students answer the teacher's questions.

TEACHER SAY: Nice job. Remember that graphs are a great way to show data. Yesterday we collected data, or information, about everyone's birthday month. Today we will collect data about our favorite days of the week.

We will be using our student book today. We will use these books to practice new things we are learning. Your book also has pages titled Math Journal for some lessons. We will write or draw what we are learning on the Math Journal pages.



TEACHER DO: Hand out student books.

TEACHER SAY: **Please open your book to page Lesson 2: Apply. You will see a blank graph with the days of the week written along the HORIZONTAL line at the bottom and numbers written along the VERTICAL side, up and down.**

 STUDENTS DO: Open student books to the page for Lesson 2.

TEACHER SAY: **Please put your finger on the horizontal line where the days of the week are listed.**

 STUDENTS DO: Place finger on the horizontal line.

TEACHER DO: Point to horizontal line on board.

TEACHER SAY: **This horizontal line at the bottom is labeled Days of the Week. In a bar graph we have CATEGORIES. Our categories for this graph are days, so along the horizontal line you see the days of the week. Now put your finger on the vertical line where the numbers are written.**

 STUDENTS DO: Place finger on vertical line.

TEACHER DO: Point to vertical line.

TEACHER SAY: **This vertical side is labeled Number of Students. This graph has categories along the horizontal side, and the numbers represent number of students up the vertical side. In a bar graph it is important that both the vertical and the horizontal sides have labels so that other people know what the graph is showing.**

2.TEACHER SAY: **Today we are going to collect some data about your favorite day of the week. This will be the data we will put into our graph. I will complete the large graph on the board. You will complete the one in your student book.**

TEACHER DO: Hand out crayons if students do not have their own. If necessary, have students share coloring tools.

TEACHER SAY: **This graph has a column for each day of the week and then an empty column. Remember that in a bar graph, the bars have a space between them. In a bar graph each category gets its own bar so there will be space between the columns. Ready? I am going to say a day of the week. If this is your favorite day of the week, stand up. You should stand up only once. Stand up if Sunday is your favorite day of the week.**

 STUDENTS DO: Stand up if Sunday is their favorite day of the week.

TEACHER SAY: **Now, let's count off the number of people who have Sunday as their favorite day. I will point to the first student, who will say "1," and we will continue until everyone standing has said a number.**

TEACHER DO: Point to one student to start the count at 1.

STUDENTS DO: Count off one by one until all students standing have said a number.

TEACHER SAY: **______ students are standing. That means ______ students have Sunday as their favorite day of the week. I am going to color in _______ boxes on my graph for Sunday.**

TEACHER DO: Color in one box for each standing student, counting as you color.

TEACHER SAY: **Now it is your turn to color in the number of people who have Sunday as their favorite day. Look at my graph and color in _____ boxes in your Sunday column, just like I did.**

STUDENTS DO: On graph in student book, color in the number of students who have Sunday as a favorite day.

TEACHER SAY: Now we will do the same for Monday and the rest of the week.

TEACHER DO: Call out a day of the week. Once students are standing, point to the first one to count aloud together. Model how to color in the boxes on the graph and then have students color in their graph. Continue until you have completed all the days of the week.

STUDENTS DO: Stand up when favorite day is called, observe teacher model coloring in data, and color in data on their own graph. Continue until graph is complete.

3.TEACHER SAY: Good. Now we all have made our own bar graphs about Favorite Day of the Week. I can look at this graph and see that ______ (day) is our class's favorite. How do I know that? Raise your hand.

STUDENTS DO: Raise hand and share ideas.

TEACHER SAY: Yes. I know that our favorite day of the week is ______ because it has the highest bar. I can follow this bar along the row to the vertical side and see that _______ students have _________ as their favorite day of the week. Like our birthday graph, this graph tells me something about our class. What is our graph missing? Talk to your Shoulder Partner about what our graph is missing. Give me a Thumbs Up when you think you know the answer.

STUDENTS DO: Talk to **Shoulder Partner** about the graph. Give a **Thumbs Up** if they know what is missing from the graph. Selected students share their thinking.

TEACHER SAY: Our graph needs a title. What should we call it?



STUDENTS DO: Raise hands to volunteer. Selected students share ideas.

TEACHER DO: Choose one of the students' title ideas, such as Favorite Day of the Week, on the top of the graph.

4.TEACHER SAY: Now it is your turn. Write the title on your graph, just as I did. You can use my graph to help you. Give me a Thumbs Up when finished.



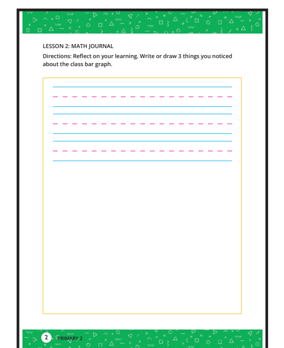
STUDENTS DO: Write the title in their student book and give a **Thumbs Up** when done.

TEACHER SAY: Nice work making your own bar graph. Our bar graphs are easy to read because they have labels along the vertical and horizontal sides and a title. Each category has its own bar. Now it is time for Reflect.



Reflect (5 minutes)

Directions



1. TEACHER SAY: **Turn in your student book to the page Lesson 2: Math Journal.**

TEACHER DO: Model how to find the page Lesson 2: Math Journal.

STUDENTS DO: Find the correct page.

TEACHER SAY: **Today we collected data about our favorite day of the week. For Reflect, we are going to use another type of page in our student books. This page is titled Math Journal because it is where you will think, write, and make sense of what you are learning. Today, I would like you to write or draw three things you noticed about the class bar graph we made. I will give you a few minutes, and then you will show your Shoulder Partner.**



STUDENTS DO: Draw or write three things they noticed about the class bar graph.

TEACHER DO: Allow students time to draw or write. After about 2 minutes, signal for students to share their ideas with their **Shoulder Partner**. Walk around and listen as students share what they learned about the class bar graph.



STUDENTS DO: Share with their **Shoulder Partner** their picture or words.

TEACHER SAY: **You showed me so much learning today. I cannot wait to see what you show me tomorrow. Put away your student book and pencils.**



STUDENTS DO: Put away student book and pencils.

Lesson 3 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math Activities.
- Interpret data in a bar graph.
- Use the symbols >, =, and < to express comparisons.

LESSON PREPARATION

Display the favorite day bar graph created in Lesson 2.

Create and display a large horizontal version of the same graph, including the data. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Bar graph
- Compare
- Equal
- Fewest
- Greater than
- Less than
- Most
- Quantity

MATERIALS

- Calendar Math area
- Large horizontal copy of the favorite day bar graph from Lesson 2 (including data)
- Student book and pencil
- Poster of >, <, and =



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1.TEACHER DO: Point to the month at the top of the calendar.

TEACHER SAY: We are in the month of (current month). Let's say all of the months together. I will say them first and you repeat me.

 **STUDENTS DO:** Repeat the months aloud.

TEACHER DO: Point to the days of the week on the calendar.

TEACHER SAY: Let's say the days of the week all together. Say them with me as I point.

TEACHER DO: Point to the days of the week as the students say them aloud.

 **STUDENTS DO:** Say the days of the week.

TEACHER SAY: Today is (day of the week).

TEACHER DO: Point to the day of the week on the calendar.

TEACHER SAY: Today is the (number) day of (month). We can put it all together to say today's date. Today is (day) the (date) of (month) (year). Now you say today's date.

 **STUDENTS DO:** Say the date aloud.

2.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 2 straws in the Ones pocket and we added 1 stick today, so now we have 3 straws. We have been in school 3 days.

3.TEACHER DO: Use **Calling Sticks** to select another student to circle 3 on the 120 Chart.



STUDENTS DO: Selected student circles 3 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 3 with the teacher.



Learn (40 minutes)

Directions

Note to the Teacher: Today students use the <. >, and = symbols to compare quantities found in the Favorite Day of the Week graph. They will look at the same data in a horizontal format rather than a vertical format, like the graph they created in Lesson 2. Be sure to have the >, <, and = symbols written on the board or a poster for students to reference. Review the graph in advance so that you understand the data and have comparison questions prepared.

1.TEACHER SAY: In our last lesson, we made a class bar graph about our favorite days. On the board is a new bar graph that displays the same data. Take out your student book and look at the graph you made in Lesson 2.

STUDENTS DO: Take out student book and turn to page Lesson 2: Apply.

TEACHER SAY: Who notices something different about today's bar graph compared with yesterday's? Turn and Talk to your Shoulder Partner. Give me a Thumbs Up when ready to share.

TEACHER DO: Give students 1 to 2 minutes to talk to partner.



STUDENTS DO: Talk to **Shoulder Partner** about what they notice. Selected students share their thinking.

TEACHER SAY: Good. This graph has the same labels and title as yesterday's graph, but instead of the days of the week being on the horizontal line, they are up and down on the vertical line. The bars are going across the graph instead of up. Is the information the same in both graphs? Think for a moment. Give me a Thumbs Up when you are ready.



STUDENTS DO: Think for a moment. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER SAY: Yes, the graphs look different, but the information is the same in both. We can make bar graphs going in either direction. What is most important is that we have:

- **A horizontal side that is labeled.**
- **A vertical side that is labeled.**
- **A title to tell people what the graph shows.**
- **Numbers to help us read the data.**

TEACHER DO: Hold up one finger as each item is stated.

TEACHER SAY: Now, you say it with me.



STUDENTS DO: Say aloud with the teacher:

- **A horizontal side that is labeled.**
- **A vertical side that is labeled.**
- **A title to tell people what the graph shows.**
- **Numbers to help us read the data.**

2.TEACHER SAY: This year, we will work with bar graphs that go in either direction, so I wanted you to see our favorite day data both ways. I am going to put up the vertical graph that we made yesterday next to this one. We will compare the data to answer some questions about our favorite days. Does it matter which graph you look at to find the answer? Give me a Thumbs Up if you want to share your thinking.



STUDENTS DO: Think for a moment and then give a **Thumbs Up** to volunteer. Selected students share their thinking. Students should note that it does not matter which graph they refer to because they show the same data.

Note to the Teacher: In this section, the days Monday and Saturday are used as examples. Be sure to use your class bar graph and choose appropriate days based on your class data when asking students to compare totals.

3.TEACHER SAY: Let's look at this data. Graphs help us organize information that we can then talk about and compare. When we compare quantities—or amounts—we can use symbols to show which amount is greater, less, or equal. Let's try this together using this graph. How many students have Monday as their favorite day of the week? (Choose a day with a relatively small number of students.) I will use Calling Sticks to choose someone to answer.



STUDENTS DO: Selected students state how many students have Monday as their favorite day.

TEACHER SAY: How many students have Saturday as their favorite day of the week? (Choose a day with a large number of students.)

TEACHER DO: Use **Calling Sticks** to choose a student to answer.



STUDENTS DO: Selected students share their answer.

TEACHER SAY: Good. Monday had _____ students and Saturday had _____ students. We could look at the bars to help us read the graph. We follow the top of the bar to the number along the vertical or horizontal side, depending on which version of the graph we look at, but the number of students is the same. I am going to write both quantities on the board.

TEACHER DO: Model how to follow the bar horizontally or vertically to determine the quantity, and show that both versions of the graph have a bar with the same quantity. Write the two quantities on the board with space in between them.

TEACHER SAY: Let's look at these two numbers. There is a math symbol we can use to compare these two numbers. Give me a Thumbs Up if you remember the symbols for less than, greater than, or equal to and want to share your thinking.



STUDENTS DO: Give a **Thumbs Up** to share their thinking about the symbols for less than, greater than, or equal to.

TEACHER DO: Display your poster showing the comparison symbols.

TEACHER SAY: The less than symbol, greater than symbol, and the equal symbol help us show comparisons between quantities. Raise your hand if you would like to come up and put in the correct symbol to show how Monday's number of students compares to Saturday's number of students.



STUDENTS DO: Raises hand to share. Selected student goes to the board and writes the correct symbol.

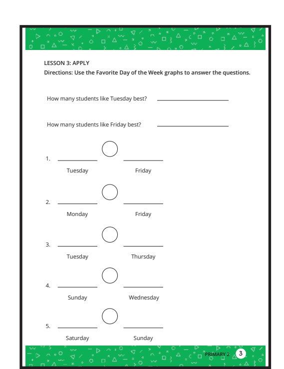
TEACHER SAY: Good. Monday had _____ students and that number is less than the ____ students who liked Saturday, so we use the less than symbol.

TEACHER DO: Point to the less than symbol.

TEACHER SAY: When we see this symbol, we say " ____ is less than ____". Say it with me.



STUDENTS DO: Repeat "____ is less than ____."



LESSON 3: APPLY

Directions: Use the Favorite Day of the Week graphs to answer the questions.

How many students like Tuesday best? __________

How many students like Friday best? __________

1. ______ ◯ ______
   Tuesday Friday
2. ______ ◯ ______
   Monday Friday
3. ______ ◯ ______
   Tuesday Thursday
4. ______ ◯ ______
   Sunday Wednesday
5. ______ ◯ ______
   Saturday Sunday

PRIMARY 2 3

4.TEACHER SAY: Now let's try some other comparisons as we look at this graph. Turn to page Lesson 3: Apply in your student book. The first question says:



READ ALOUD: Tuesday __________ ◯ __________ Friday

TEACHER SAY: To answer this, we need to look at the graph to see how many students like Tuesday best. Work with your Shoulder Partner and your graph to find out how many people like Tuesday best. Record the number on the line in your book. Then find out how many people like Friday best and record that number on the line. I will give you a few minutes to work together and then call on someone using the Calling Sticks to come up and share how they found the numbers.

TEACHER DO: Write the question on the board. Give students 2 or 3 minutes to look at the graph and record the number of students for both days at the top of the page. Walk around and offer help as needed.



STUDENTS DO: Work with **Shoulder Partner** to find number of students from graph and record.

TEACHER DO: Use **Calling Sticks** to choose a student to come up and show how they found the number of students. As the student is sharing, model how to follow the bar to find the number of students. It is important that students understand that the bar represents a number of "things." In this case, each bar represents the number of students who like a given day best.



STUDENTS DO: Selected students share how they found the numbers and record both numbers on the board.

TEACHER SAY: Good. You used the bars to find how many students liked each day. Now that we have recorded the two numbers, which symbol should we use to compare these numbers? Give me a Thumbs Up if you want to come up and write in the symbol on the board between these two numbers.



STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected students go to the front and write in the symbol. Students "read" the comparison aloud.

TEACHER DO: If necessary, explain further for students who seem to be struggling to understand which symbol to use.

5.TEACHER SAY: Great. Now that we have compared Tuesday and Friday, you will spend the rest of math class today looking at your graph and doing some more comparisons. First, let's practice using our arms. Stand up.



STUDENTS DO: Stand.

TEACHER DO: Model how to create each symbol using your arms. Ask students to copy your movements.



STUDENTS DO: Make the less than, greater than, and equal to symbols using their arms.

TEACHER SAY: That looked great. The comparisons are written in your student book. Work with your Shoulder Partner to find the numbers and then compare them using the signs for less than, greater than, or equal to. Remember, if two days have the same number of students that like them, then they are equal, and we will use the equal symbol.

STUDENTS DO: Work with **Shoulder Partner** on comparisons in student book for Lesson 3 for the rest of the Learn time.

TEACHER DO: Walk around the class and observe students using the graph and comparing the numbers. Offer assistance when needed and make note of students who are struggling to interpret the graph or to use the correct symbols.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we looked at our favorite day graph both vertically and horizontally and solved some problems comparing the data. Let's use Shake It Share It High Five to see each other's work. Find a partner and share your student book page. Talk about how you solved the problems and see if you found the same answers.**

TEACHER DO: Review **Shake It Share It High Five** if necessary. Give a signal to start, and clap for students to stop and share.



STUDENTS DO: Shake It Share It High Five with at least three different partners.

TEACHER DO: Continue to give signals to start and stop until at least three partnerships occur (or until the Reflect period is over).

TEACHER SAY: Good work solving comparison problems with our graph. Put away your student books and pencils. Tomorrow we make a new graph.



STUDENTS DO: Put away student books and pencils.

Lesson 4 Overview

LEARNING OBJECTIVES

Students will:

- Students will:
- Participate in Calendar Math activities.
- Collect and interpret data.
- Create a bar graph about siblings.
- Order a set of numbers from least to greatest.

LESSON PREPARATION

Create and display the Siblings in Our Family table. See Chapter Preparation for the Teacher for detailed instructions. The class will use the table to collect data.

Create and display a large copy of the Siblings in Our Family bar graph. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Bar graph
- Calendar
- Compare
- Data
- Greatest
- Least
- Order
- Table

MATERIALS

- Calendar Math area
- Student book and pencil
- Crayons, colored markers, or colored pencils
- Sibling data collection table
- Large blank Siblings in Our Family bar graph



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1.**TEACHER DO:** Point to the month at the top of the calendar.

TEACHER SAY: Give me a Thumbs Up if you know what month we are in right now.



STUDENTS DO: Give a **Thumbs Up** if they know the month.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current month.



STUDENTS DO: Selected student points to and says the name of the current month and then sits.

TEACHER SAY: Let's say all of the months. I will say each one first and you repeat after me.



STUDENTS DO: Repeat the months aloud.

TEACHER DO: Point to the days of the week on the calendar.

TEACHER SAY: Let's say the days of the week all together. Say them with me as I point.

TEACHER DO: Point to the days of the week as the students say them aloud.



STUDENTS DO: Say the days of the week aloud.

TEACHER SAY: Give me a Thumbs Up if you know what day it is today.

STUDENTS DO: Give a **Thumbs Up** if they know the day.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current day.

STUDENTS DO: Selected student points to and says the name of the current day and then sits.

TEACHER SAY: Raise your hand if you would like to try to say today's date. I will help you if you need help.



STUDENTS DO: Raise hands to volunteer. Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.



STUDENTS DO: Say the date aloud.

2.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 3 straws in the Ones pocket and we added 1 stick today, so now we have 4 straws. We have been in school 4 days.

3.TEACHER DO: Use **Calling Sticks** to select another student to circle 4 on the 120 Chart.



STUDENTS DO: Selected student circles 4 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



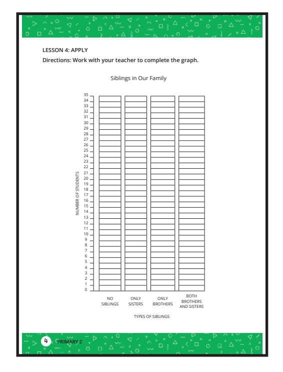
STUDENTS DO: Count aloud to 4 with the teacher.

TEACHER SAY: Wonderful work. Please be seated.



Learn (40 minutes)

Directions



1.TEACHER SAY: Yesterday we compared quantities in a favorite day bar graph. Today we are going to make a new class bar graph about how many siblings we have. We will learn a little more about each other and practice creating and interpreting bar graphs. Open your student book to page Lesson 4: Apply. I am going to hand out crayons (or colored markers or pencils) for each pair to share.

TEACHER DO: Hand out crayons, colored markers, or colored pencils to each pair of students.



STUDENTS DO: Open student books to page Lesson 4: Apply.

2.TEACHER SAY: Your page has a blank grid for our graph, but first we need to collect some data. The table on the board will help us to collect data before we make the graph. Let's look at it together.



STUDENTS DO: Look at table on the board.

TEACHER SAY: **We are going to collect data about our families and our brothers and sisters. Students in our class have different sizes of families and different numbers of siblings. Siblings are brothers or sisters. Some people do not have any brothers or sisters and they are the only child in their family. Some people have only sisters or only brothers.**

I have made this table on the board to help us collect and organize our data. We will then use our data to make a bar graph. Let's begin. If you have no siblings and are the only child in your family, stand up.

 **STUDENTS DO:** Stand up if an only child.

TEACHER SAY: **_____ students are standing, so we will record ______ in the box next to "No siblings."**

TEACHER DO: Model writing the number of students with no siblings. If possible, choose a student to record the number in the table.

TEACHER SAY: **Now, stand up if you have only sisters.**

 **STUDENTS DO:** Stand up if only have sisters.

TEACHER DO: Count the students and record in the table (or choose a student to record the data). Repeat the process for only brothers and both brothers and sisters.

 **STUDENTS DO:** Stand up if they have only brothers, and then stand up if they have both brothers and sisters. Selected students record data in the table.

3. **TEACHER SAY:** **Now that we have collected our data, we can make a bar graph that shows the data. In your student book and on the board, you can see a blank grid with the horizontal side (bottom) labeled Types of Siblings. The four categories are No Siblings, Only Sisters, Only Brothers, and Both Brothers and Sisters. The vertical side is labeled Number of Students and counts by ones up the vertical side. What four things do all bar graphs have to have? Raise your hand if you remember.**

 **STUDENTS DO:** Raise hands to volunteer. Selected students share their thinking.

TEACHER SAY: **Bar graphs have to have both sides labeled, a title, and a scale—numbers to show how many. The title of our graph today is Siblings in Our Families.**

TEACHER DO: As explaining, point to graph on board to reinforce horizontal and vertical sides, labels, title, and scale.

TEACHER SAY: **Let's figure out how many boxes to color in to make our bars for each category.**

TEACHER DO: For each category, ask students to identify the numbers in the table. Direct students to color in that many boxes in the graph in the student book as you do the same at the board. Whenever possible, ask students to provide answers and demonstrate their understanding of how to create a bar graph using the data in the table.

 **STUDENTS DO:** Respond to the teacher's questions, identify how many students responded to each category, color in the bar graph to show data for each category, and explain or demonstrate their thinking when asked.

4. **TEACHER SAY:** **Good. Now we have a bar graph that shows our class data about our siblings. Let's record our totals.**

TEACHER DO: Ask students to identify the class data for each category and record it in their student book.

 **STUDENTS DO:** Identify the totals for each category. Record the totals in the student book.

TEACHER SAY: **One way we can compare our data is to order it from least to greatest. Turn to your Shoulder Partner and discuss which category has the fewest students. Give a Thumbs Up**

when you are ready to share.



STUDENTS DO: Talk with **Shoulder Partner** and determine which category has the fewest students. Give a **Thumbs Up** when ready. Selected students share their answers and explain their thinking.

TEACHER SAY: **Good. The category with the fewest students is _____. That category has _____ students. It is the shortest bar on our bar graph. I can follow the bar from the top horizontally to the vertical side and see that there are _____ students that have _____ (number of siblings). Since that is the lowest number, we will write it on the board first. I would like one of you to help me. You will also write the numbers in your student book.**

TEACHER DO: Use **Calling Sticks** or another method to select a student to record the first number on the board.



STUDENTS DO: Selected student records the lowest number on the board. All students record the lowest number in the student book.

5.TEACHER SAY: **With your Shoulder Partner, look at our graph and each category. Determine how many students are in each category, and then fill in the rest of this list, ordering the data from least to greatest. Remember, we already have the first number, which is the category with the least number of students. After a few minutes, I will call one of you to come up and share.**



STUDENTS DO: Work with **Shoulder Partner** to interpret number of students in each category and then list the numbers in order from least to greatest.

TEACHER DO: Allow students to work for 2 to 3 minutes. Walk around and support pairs in interpreting the graph and finding the number of students for each category (bar).

TEACHER SAY: **Who would like to come and share their list of numbers from least to greatest and explain their thinking? Raise your hand.**



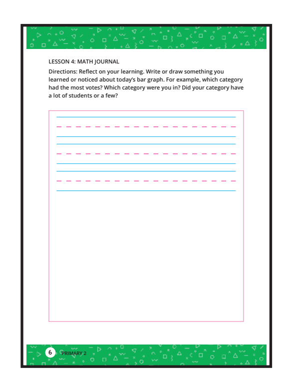
STUDENTS DO: Raise hand to share. Selected students go to the front to model how they determined number of students for each category and then put the numbers in order from least to greatest.

TEACHER SAY: **Great thinking today. You did good work collecting data, creating a bar graph, and ordering the data.**



Reflect (5 minutes)

Directions



1.TEACHER SAY: **Turn to page Lesson 4: Math Journal in your student book.**

For Reflect, I would like you to write or draw something you learned or noticed today about this bar graph. For example, which category had the most? Which category were you in, and was that a category with lots of students or a few? When you are finished, share your Math Journal entry with your Shoulder Partner.



STUDENTS DO: Think about something they learned or noticed about the graph. Write or draw their thinking in their student books. Share their journal entry with their **Shoulder Partner**.

TEACHER DO: Walk around and observe students as they work and talk. Give students 3 to 4 minutes to work.

TEACHER SAY: **You may put your student book away. Give your Shoulder Partner a high five. You all have worked hard creating lots of bar graphs and learning about each other too.**



STUDENTS DO: Put away student book. Give **Shoulder Partner** a high five.

Lesson 5 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Interpret data in a bar graph. • Solve put-together and take-apart problems about bar graph data.	• Addition • Bar graph • Calendar • Data • Difference • Subtraction • Sum	• Calendar Math area • Student book and pencil • Large copy of Favorite Fruit graph • Questions about bar graph data (written on the board or on a large poster) • Sets of 20 counters (one set per pair of students)

LESSON PREPARATION

Create and display a large copy of the Favorite Fruit graph. See Chapter Preparation for the Teacher for detailed instructions.

Display a list of questions about the graph data. See Chapter Preparation for the Teacher for detailed instructions. Students also have this list of questions in their student book.

Create sets of 20 counters (one set per pair of students). Possible counters include dried beans or pasta, buttons, small stones.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Point to the month at the top of the calendar.

TEACHER SAY: **Give me a Thumbs Up if you know what month we are in right now.**

 **STUDENTS DO:** Give a **Thumbs Up** if they know the month.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current month.

 **STUDENTS DO:** Selected student points to and says the name of the current month and then sits.

TEACHER SAY: **Let's say all of the months. I will say each one first and you repeat after me.**

 **STUDENTS DO:** Repeat the months aloud.

TEACHER DO: Point to the days of the week on the calendar.

TEACHER SAY: **Let's say the days of the week all together. Say them with me as I point.**

TEACHER DO: Point to the days of the week as the students say them aloud.

 **STUDENTS DO:** Say the days of the week aloud.

TEACHER SAY: Give me a Thumbs Up if you know what day it is today.

 **STUDENTS DO:** Give a **Thumbs Up** if they know the day.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current day.

 **STUDENTS DO:** Selected student points to and says the name of the current day and then sits.

TEACHER SAY: Raise your hand if you would like to try to say today's date. I will help you if you need help.

 **STUDENTS DO:** Raise hands to volunteer. Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud.

TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

2.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.

 **STUDENTS DO:** Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 4 straws in the Ones pocket and we added 1 stick today, so now we have 5 straws. We have been in school 5 days.

3.TEACHER DO: Use **Calling Sticks** to select another student to circle 5 on the 120 Chart.

 **STUDENTS DO:** Selected student circles 5 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

 **STUDENTS DO:** Count aloud to 5 with the teacher.

TEACHER SAY: You are getting really good at Calendar Math. Please be seated.



Learn (40 minutes)

Directions

1. **TEACHER DO:** Display the large Our Favorite Fruit bar graph.

TEACHER SAY: We have been looking at and making bar graphs. Today we are going to look at a new bar graph. Look closely at the graph and think about how it is the same as and different than other bar graphs we have seen.



STUDENTS DO: Discuss with **Shoulder Partner** the similarities and differences among this graph and other graphs they have worked on.

TEACHER DO: Give 1 to 2 minutes for students to discuss and then use an **Attention Getting Signal**. Use **Calling Sticks** to choose 2 or 3 students to share observations.



STUDENTS DO: Selected students share their observations.

2. **TEACHER SAY: Thank you for sharing your thinking. I am going to ask a few questions about the data on this graph.**

TEACHER DO: Use **Calling Sticks** to select students to answer questions about the graph (such as the questions below). Ask questions based on the needs of the group.

TEACHER SAY:

- **What is the most popular fruit on this graph? How can you tell?**
- **Which fruit is liked the least? How can you tell?**
- **Are there any fruits that have equal numbers of people that like them? How can you tell?**



STUDENTS DO: Selected students answer the teacher's questions.

3. **TEACHER SAY: Nice job. Now we are going to look a little deeper into this data and do some addition and subtraction to compare the data more.**

I would like to know how many people liked strawberries and bananas. To figure this out, I have to add together the number of people who like strawberries and the number of people who like bananas. When I add, I am finding a SUM. Repeat the word SUM.



STUDENTS DO: Repeat the word "sum."

TEACHER SAY: Tell me how many people liked strawberries.



STUDENTS DO: Look at the graph and call out the answer.

TEACHER SAY: Tell me how many students liked bananas best.



STUDENTS DO: Look at the graph and call out the answer.

TEACHER SAY: Great. Now we can add 9 + 7 together to find the sum. Raise your hand when you know the sum of 9 and 7.



STUDENTS DO: Raise hand when they have the answer. Selected students answer the question.

TEACHER DO: Confirm the correct answer or ask other students until the correct answer is provided.

4. **TEACHER SAY: Now let's compare how many more people liked bananas than oranges. We know from the last problem that 7 people liked bananas best. Look at the graph and Whisper into your hands how many people liked oranges.**



STUDENTS DO: Whisper "3" into hands.

TEACHER SAY: Yes, 3 people liked oranges best. How many MORE people liked bananas best? Give me a Thumbs Up when you have an answer and would like to come up and share with the class how you found the answer.



STUDENTS DO: Think quietly. Give a **Thumbs Up** when they have an answer. Selected students share their answers and explain their thinking and strategy.

TEACHER SAY: Thank you. Who figured out the answer using a different strategy? Give me a Thumbs Up.



STUDENTS DO: Give a **Thumbs Up** if they used a different strategy. Selected students share their answers and explain their thinking and strategy.

Note to the Teacher: Some students may compare the bars and count the difference between the banana bar and the orange bar. Some students may count up from 3 to 7 to determine the answer. Other students may subtract the lower number (3) from the higher number (7) to solve the problem. All of these methods are appropriate and should be commended. However, since students are expected to subtract to find "how many more," be sure to model that strategy if no students share it. A procedure is provided below that addresses all of these methods. Skip the strategies the students already shared.

TEACHER SAY: Thank you for sharing your thinking and your strategies. Wonderful work. There is another way to find the answer. When we are trying to find out how many more, we are trying to find out the DIFFERENCE. You say difference.



STUDENTS DO: Repeat "difference."

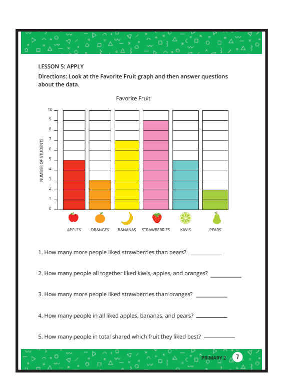
TEACHER SAY: When we need to find the difference, we look at both numbers. On this graph, 3 people liked oranges and 7 people liked bananas. I can see from the graph that 4 more boxes are colored in on the banana bar, or column, so the difference is 4. I started at 3 and counted up to 7. I know that 3 plus 4 equals 7, so the difference is 4.

TEACHER DO: Write 3 + 4 = 7 on the board.

TEACHER SAY: I can also start with the larger number and subtract the smaller number to find the difference.

TEACHER DO: Write 7 – 3 = 4 on the board.

4. TEACHER SAY: We can do a lot of different things with data in graphs. We can add two categories together and find the SUM, or we can count up or subtract to find the DIFFERENCE between two categories, or bars. Take out your student book and open it to page Lesson 5: Apply.



LESSON 5: APPLY

Directions: Look at the Favorite Fruit graph and then answer questions about the data.

1. How many more people liked strawberries than pears? ________
2. How many people all together liked kiwis, apples, and oranges? ________
3. How many more people liked strawberries than oranges? ________
4. How many people in all liked apples, bananas, and pears? ________
5. How many people in total shared which fruit they liked best? ________

PRIMARY 2 7



STUDENTS DO: Open student book to the page for Lesson 5.

TEACHER SAY: For the rest of the class, you will work with your Shoulder Partner to answer questions about the data. I will read them to you now. Try and answer as many as you can. You can get counters to help you, or you can use any other strategy you have to find the answers.



STUDENTS DO: Work with **Shoulder Partner** to answer as many questions as they can in the class time left.

TEACHER DO: Walk around the class observing students as they work. Offer help where necessary. Note students who need extra support or may need reteaching later. When class time is coming to an end, use an **Attention Getting Signal** to bring the group back.

5. TEACHER SAY: Good job today. Put away your pencil and any materials but keep out your student book.



STUDENTS DO: Clean up supplies.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we looked at a graph about favorite fruits and solved some problems by adding and subtracting. Let's use Shake It Share It High Five to find a partner. After you find a partner, share your answers and discuss the strategies you used.**

 **STUDENTS DO:** **Shake It Share It High Five** with at least three different partners (or until the Reflect period is over).

TEACHER DO: Continue to give signals to change partners.

TEACHER SAY: Good work solving problems with our graph. Put away your student books and pencils. Tomorrow we will look at another fruit graph but with a different scale.

 **STUDENTS DO:** Put away student books and pencils.

Lesson 6 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Skip count by 2s.
- Interpret a bar graph with a scale of 2.

PREPARATION

Display the Favorite Fruit graph from Lesson 5.

Display a 120 Chart where all students can see it (if it is not already posted).

Create and display a large copy of the Favorite Fruit 2 bar graph. See Chapter Preparation for the Teacher for detailed instructions.

Display list of questions about the graph data. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Bar graph
- Calendar
- Compare
- Data
- Least
- Most
- Scale
- Skip counting

MATERIALS

- Calendar Math area
- Student book and pencil
- 120 Chart
- Large copy of the Favorite Fruit 2 bar graph
- Questions about bar graph data (written on the board or on a large poster)



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. TEACHER SAY: **Give me a Thumbs Up if you know what month we are in right now.**


STUDENTS DO: Give a **Thumbs Up** if they know the month.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current month.


STUDENTS DO: Selected student points to and says the name of the current month and then sits.

TEACHER SAY: **Let's say all of the months. I will say each one first and you repeat after me.**


STUDENTS DO: Repeat the months aloud.

TEACHER DO: Point to the days of the week on the calendar.

TEACHER SAY: **Let's say the days of the week all together. Say them with me as I point.**

TEACHER DO: Point to the days of the week as the students say them aloud.


STUDENTS DO: Say the days of the week aloud.

TEACHER SAY: **Give me a Thumbs Up if you know what day it is today.**


STUDENTS DO: Give a **Thumbs Up** if they know the day.

TEACHER DO: Select a student giving a **Thumbs Up** to point to and say the name of the current day.

STUDENTS DO: Selected student points to and says the name of the current day and then sits.

TEACHER SAY: Raise your hand if you would like to try to say today's date. I will help you if you need help.



STUDENTS DO: Raise hands to volunteer. Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.



STUDENTS DO: Say the date aloud.

2.TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.



STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.



STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 5 straws in the Ones pocket and we added 1 stick today, so now we have 6 straws. We have been in school 6 days.

4.TEACHER DO: Use **Calling Sticks** to select another student to circle 6 on the 120 Chart.



STUDENTS DO: Selected student circles 6 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 6 with the teacher.

TEACHER SAY: Wonderful. Soon you will be ready to lead Calendar Math. Please be seated.



Learn (40 minutes)

Directions

1.TEACHER SAY: Yesterday we looked at a bar graph about favorite fruits. Today we are going to look at another favorite fruit graph that someone else made, but first we are going to practice skip counting by 2s. This will help us when we are working with the data on today's graph. When we skip count by 2s, we say every other number. I am going to model this and show you the pattern on our 120 Chart on the board.

TEACHER DO: Point to the 120 Chart.

TEACHER SAY: Last year, you used a 100 Chart, but now that you are older, we have added 20 more numbers—two more rows of 10. We can use this chart to help us count and solve problems up to 120. I am going to count by 2s from 2 to 50 and touch each number as I say it. Listen and watch.

TEACHER DO: As you count aloud by 2s from 2 to 50, point to each number on the 120 Chart.


STUDENTS DO: Watch and listen as the teacher counts by 2s.

TEACHER SAY: Raise your hand if you would like to share something you noticed as I counted. Did anyone see any patterns?


STUDENTS DO: Raise hand to volunteer. Selected students share their observations and thinking.

TEACHER SAY: Good. When we count by 2s, there is a pattern. When we start counting, we say 2, 4, 6, 8, 10. Then we see the 2, 4, 6, 8, and a 10 in the next set of numbers.

TEACHER DO: Point to the 2, 4, 6, 8, and 0 in 12, 14, 16, 18, 20.

TEACHER SAY: We say 2, 4, 6, 8, and a 10 in each group of ten.

TEACHER DO: Point to the 2, 4, 6, 8, and 10 in 22, 24, 26, 28, 30, 32, 34, 36, 38, and 40.

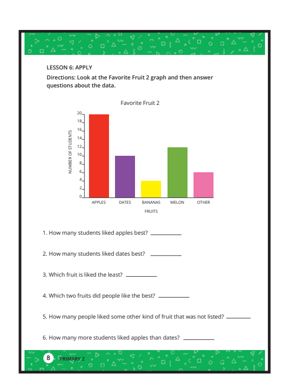
TEACHER SAY: And we skip a number each time we count.

TEACHER DO: Point again to show that you are skipping 1, 3, 5, 7, and 9 each time you count aloud.

2. TEACHER SAY: Now it is your turn. We will skip count together, but we will pause after each number to clap to show that we are skipping a number. I will point to the numbers on the 120 Chart to help us skip count. It will sound like this: 2 (clap), 4 (clap), 6 (clap), 8 (clap), 10 (clap). Ready to count? Follow along.


STUDENTS DO: Count aloud with teacher, alternating counting and clapping as they skip count by 2s from 2 to 50.

3. TEACHER SAY: Great job counting. Skip counting is fun, and the 120 Chart is a good tool to help us see patterns when we skip count. Now let's look at our new graph. Open your student book to page Lesson 6: Apply.


LESSON 6: APPLY

Directions: Look at the Favorite Fruit 2 graph and then answer questions about the data.

1. How many students liked apples best? ________
2. How many students liked dates best? ________
3. Which fruit is liked the least? ________
4. Which two fruits did people like the best? ________
5. How many people liked some other kind of fruit that was not listed? ________
6. How many more students liked apples than dates? ________

8 PRIMARY 2


STUDENTS DO: Open student book to the page for Lesson 6.

TEACHER SAY: Take a minute with your Shoulder Partner to look at this graph and the Favorite Fruit graph from our last lesson. What do you notice? What is the same and what is different between them? I will use Calling Sticks to hear your thinking.


STUDENTS DO: Talk to **Shoulder Partner** about similarities and differences in the graphs.

TEACHER DO: Give 1 to 2 minutes for partners to discuss the graph. Use **Calling Sticks** to choose 3 or 4 students to share.


STUDENTS DO: If called on, share observations

TEACHER SAY: Good observations. Today's graph is also a graph about favorite fruit and it is a bar graph just like our graph yesterday. However, the numbers on the sides of the two graphs are different. In the first Favorite Fruit graph, each line in the graph represented 1 student, but in this graph each line represents 2 students. The numbers up the side are counting by 2s, just as we did at the beginning of class. Why might we need to count by 2s instead of 1s when making a graph? Think for a moment and then share your thinking with your Shoulder Partner. Give me a Thumbs Up when you are ready to share your thinking with the group.

STUDENTS DO: Think quietly about the teacher's question and then share their thinking



with their **Shoulder Partner**. Give a **Thumbs Up** when they are ready. Selected students share their thinking.

TEACHER DO: If necessary, explain that we often need to use larger numbers when we are collecting data from a lot of people or collecting a lot of data.

4. TEACHER SAY: I am going to ask a few questions about this fruit graph. Remember that with this graph, each box represents 2 students.

TEACHER DO: Point to the fruit graph.

TEACHER SAY: How many students liked apples best? Talk to your Shoulder Partner and give a Thumbs Up when you have an answer.



STUDENTS DO: Using their graph, talk to **Shoulder Partner** and find the number of students who like apples best. Give a **Thumbs Up** when ready.

TEACHER DO: Give 1 minute of **Wait Time** and then call on a student with **Thumbs Up**.

TEACHER SAY: Great. 20 students like apples best. I can count each box by 2s, or I can follow the bar over to the scale on the side and see that the bar ends at 20.

TEACHER DO: Model how to count each box by 2 and also how to just use the scale.



STUDENTS DO: Observe as the teacher explains how to use the scale on the bar graph to count data.

TEACHER DO: Display the bar graph questions (on the board or on a large poster). Repeat process asking questions from above, waiting for **Shoulder Partners** to solve, calling on students, and then modeling to find the answer.



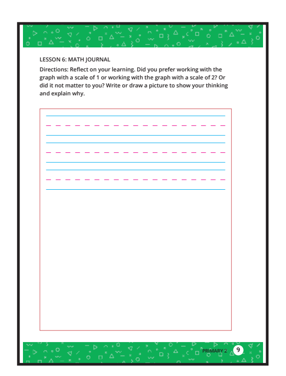
STUDENTS DO: Using graph, continue to work with **Shoulder Partner** to answer questions and share thinking.

TEACHER SAY: Good work using this graph to answer my questions.



Reflect (5 minutes)

Directions



LESSON 6: MATH JOURNAL

Directions: Reflect on your learning. Did you prefer working with the graph with a scale of 1 or working with the graph with a scale of 2? Or did it not matter to you? Write or draw a picture to show your thinking and explain why.

1. TEACHER SAY: Open your student book to page Lesson 6: Math Journal.



STUDENTS DO: Turn to the correct page.

TEACHER SAY: Today for Reflect, I want you to think about both of the favorite fruit graphs we have talked about. One had a scale of 1 and one had a scale of 2. Which one seemed easier to understand? Why? On your Math Journal pages, write or draw which graph you preferred and why. When you are finished, share your journal entry with your Shoulder Partner.

STUDENTS DO: Write or draw which graph they preferred and explain why. When finished, share their journal entry with their **Shoulder Partner**.

TEACHER DO: Walk around and observe students as they work and talk. Give them about 3 to 4 minutes to work.

TEACHER SAY: Thank you. You did great work reading a new bar graph with a different scale. Put away your student book and pencil.



STUDENTS DO: Put away their student books and pencils.

Lesson 7 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Skip count by 10s.
- Interpret a bar graph with a scale of 10.

LESSON PREPARATION

Create and display a large copy of the Favorite Colors bar graph. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Bar graph
- Calendar
- Compare
- Data
- Least
- Most
- Scale
- Skip counting

MATERIALS

- Calendar Math area
- Student book and pencil
- Large copy of the Favorite Colors bar graph
- 120 Chart



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

Note to the Teacher: Your daily Calendar Math routine will remain consistent throughout the school year. After this chapter, the Calendar Math section will be abbreviated unless new processes are being introduced. Please refer to earlier lessons if you need a guide for working through Calendar Math with students. Additionally, you should gradually be shifting responsibility for Calendar Math to the students. You are encouraged to ask questions to help students build understanding of the calendar and foundational math concepts, such as "What month comes before February?" and "What patterns do you see in the 120 Chart (or calendar or place value pockets)?"

1. **TEACHER DO:** Use **Calling Sticks** to select a student to identify the current month.

 **STUDENTS DO:** Selected student points to and says the name of the current month, and then sits.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to identify the current day.

 **STUDENTS DO:** Selected student points to and says the name of the current day and then sits.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to say today's date.

 **STUDENTS DO:** Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year). Student sits.

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

STUDENTS DO: Say the date aloud with the teacher.

2. TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.



STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.



STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3. TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 6 straws in the Ones pocket and we added 1 stick today, so now we have 7 straws. We have been in school 7 days.

4. TEACHER DO: Use **Calling Sticks** to select another student to circle 7 on the 120 Chart.



STUDENTS DO: Selected student circles 7 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 7 with the teacher.

TEACHER SAY: Wonderful. Soon you will be ready to lead Calendar Math. Please be seated.



Learn (40 minutes)

Directions

1. TEACHER DO: Display large copy of the Favorite Colors bar graph.

TEACHER SAY: Yesterday we looked at a bar graph about favorite fruit. It had a scale of 2. We practiced counting by 2s to be able to answer questions about the graph. Today we are going to look at a bar graph that will have a different scale. Let's look at it now and see if you can tell what the scale is. Since this graph is going vertically, the scale is up the vertical side. When you think you know, give me a Thumbs Up.



STUDENTS DO: Look at graph to determine scale. Give a **Thumbs Up** when they know the answer. Selected students share their thinking.

TEACHER SAY: On this graph, the scale is 10. That means that each time we go up a line on the graph, we are skip counting by 10. Let's warm up for today's math lesson by skip counting by 10 together. We will count from 10 to 120. We will say the number and then clap. Each clap will represent all the numbers we are skipping as we count. Where can we look if we need help knowing what number comes next? Think quietly for a moment and raise your hand if you have an idea.



STUDENTS DO: Think quietly and then raise hand to volunteer. Selected students share their thinking.

TEACHER SAY: We can look at our 120 Chart to help us know what numbers to say as we skip count by 10s. As we count today, I will point to the numbers. I will start and say 10. We will

count by 10s to 120. Remember that we will clap in between numbers to represent all of the numbers we are skipping.

TEACHER DO: Begin counting aloud by pointing to 10 on the 120 Chart and saying "10," and then clapping. Continue skip counting and clapping to 120.



STUDENTS DO: Skip count aloud with the teacher, saying the numbers the teacher points to on the 120 Chart and clapping between each number.

TEACHER SAY: Great job. Give me a Thumbs Up if you noticed any patterns as we skip counted by 10s together.



STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected students describe the patterns they observed.

TEACHER SAY: Well done. When we skip count by 10s, we simply move down one row each time. We are skipping all of the other numbers in the row. Being able to count by 10s will help us with today's bar graph. Take a minute to look at the graph and share some of your observations with your Shoulder Partner. What do you notice? What comparisons can you make?



STUDENTS DO: Look at the graph and talk to their **Shoulder Partner** about things they notice.

TEACHER DO: After 1 to 2 minutes, use **Calling Sticks** to select students to share their thinking.



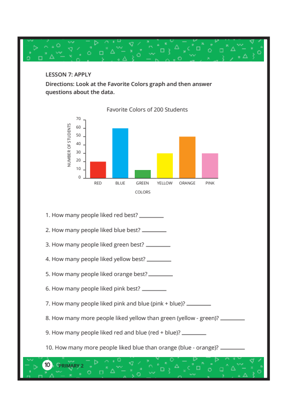
STUDENTS DO: Selected students share their observations about the Favorite Colors graph.

TEACHER DO: Praise students for sharing their observations, thinking, and questions. Ask students the questions below (skip questions that students have already answered).

- Which color was the favorite of the 200 students asked? How can you tell?
- Which color was the least favorite of the group? How can you tell?
- Which color had more than 50 students like it? How can you tell?
- How many people liked red best? How can you tell?

STUDENTS DO: Selected students answer the teacher's questions.

TEACHER SAY: Nice job answering questions about this graph. Now it is your turn to work on some more problems with your Shoulder Partner. Open your student book to page Lesson 7: Apply. You will see a copy of our graph and questions about the data.



LESSON 7: APPLY

Directions: Look at the Favorite Colors graph and then answer questions about the data.

1. How many people liked red best? ________
2. How many people liked blue best? ________
3. How many people liked green best? ________
4. How many people liked yellow best? ________
5. How many people liked orange best? ________
6. How many people liked pink best? ________
7. How many people liked pink and blue (pink + blue)? ________
8. How many more people liked yellow than green (yellow - green)? ________
9. How many people liked red and blue (red + blue)? ________
10. How many more people liked blue than orange (blue - orange)? ________

10 PRIMARY 2



STUDENTS DO: Open student book to page for Lesson 7.

TEACHER SAY: Your page has questions about the graph. The first question is answered for you. I will read them aloud. Follow along with me.

TEACHER DO: Read all the questions on the student book page before students begin working, or select students to read one question each aloud.



STUDENTS DO: Follow along as the teacher (or student) reads the questions aloud.

TEACHER SAY: You will work with your Shoulder Partner to analyze the graph and answer as many of these questions as you can with the time left. Problems 7, 8, 9, and 10 are more difficult. You and your partner will have to add or subtract to solve the problem. Are there any questions?



STUDENTS DO: Ask questions if necessary and then work with **Shoulder Partner** to analyze the graph and answer the questions in the student book.

TEACHER DO: Answer students' questions. If some groups finish early you can ask them additional questions about the data or have them help classmates who need support. Walk around and observe students as they work. Make note of students who may need additional instruction. When Learn time is over use an **Attention Getting Signal**.

TEACHER SAY: **Good job answering questions about the graph today. Please put away your student books and pencils for today.**

 **STUDENTS DO:** Put away student books and pencils.



Reflect (5 minutes)

Directions

1. **TEACHER SAY:** **Think about all the bar graphs we have looked at in math. I asked questions about each one, and you were able to use the data in the graph to answer my questions. Take a minute and think of a question you could ask your friends about today's graph. I will give you about 1 minute to think.**

 **STUDENTS DO:** Think of a question to share.

TEACHER DO: After about 1 minute, use **Calling Sticks** to choose 2 to 4 students to share with the group.

 **STUDENTS DO:** Selected students share their questions about the Favorite Colors bar graph with the group. Remaining students listen to the questions and use data from the graph to answer them.

TEACHER SAY: **Good work in math today. I really enjoyed hearing you ask and answer questions about the Favorite Colors bar graph.**

Lesson 8 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Collect data about the sums of 2 six-sided dice.
- Create a bar graph to represent the collected data.
- Interpret data in a bar graph.

LESSON PREPARATION

Create and display a large copy of the Which Sum Is Rolled the Most? bar graph. See Chapter Preparation for the Teacher for detailed instructions.

Have a set of six-sided dice for each pair of students. (Note to the Teacher: If dice are not available, see the Six-Sided Die-Number Cube Net Blackline Master. You will need scissors, a marker, and clear tape to create the cubes.)

KEY VOCABULARY

- Calendar
- Dice
- Graph
- Horizontal
- Most
- Sum
- Vertical

MATERIALS

- Calendar Math area
- Student book and pencil
- Large copy of the Which Sum Is Rolled the Most? bar graph
- 2 six-sided dice for each pair of students
- Crayons for each pair of students



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to identify the current month.

 **STUDENTS DO:** Selected student points to and says the name of the current month and then sits.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to identify the current day.

 **STUDENTS DO:** Selected student points to and says the name of the current day and then sits.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to say today's date.

 **STUDENTS DO:** Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year). Student sits.

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

STUDENTS DO: Say the date aloud with the teacher.

2.TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.



STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.



STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 7 straws in the Ones pocket and we added 1 stick today, so now we have 8 straws. We have been in school 8 days.

4.TEACHER DO: Use **Calling Sticks** to select another student to circle 8 on the 120 Chart.



STUDENTS DO: Selected student circles 8 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 8 with the teacher.

TEACHER SAY: Great work. You are getting so good at Calendar Math. Please be seated.



Learn (40 minutes)

Directions

Note to the Teacher: Today students will roll dice to find the sum of 2 one-digit numbers. They will record their sums in the student book, creating a bar graph.

1.TEACHER SAY: Today we are going to play a math game to collect data to make a bar graph. As part of the game, we will add two numbers together to find a sum. Who can remind us what sum means? Raise your hand.

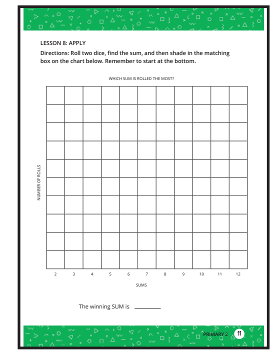


STUDENTS DO: Raise hand to volunteer. Selected students answer the question.

TEACHER SAY: Yes, sum is what we call the answer when we add two or more numbers together. Today we will be rolling two dice and adding the numbers together. Then we will record the sum on a bar graph to see which sum we rolled the most. Open your student book to page Lesson 8: Apply.



STUDENTS DO: Open student book to the page for Lesson 8.



LESSON 8: APPLY

Directions: Roll two dice, find the sum, and then shade in the matching box on the chart below. Remember to start at the bottom.

The winning SUM is ______

PRIMARY 2 11

TEACHER SAY: On the board there is a graph just like the one you have in your student book. This graph has a title: Which Sum Is Rolled the Most? These numbers are all the sums we could possibly get if we roll two dice and add them together. The vertical side of the graph is labeled Number of Rolls. Each line moving up the graph represents 1 roll (point). Along the horizontal side (point), we see the numbers 2 to 12. These numbers are all the sums we could possibly get if we roll two dice and add them together. The label is Sums. Why is there no column for a sum of 1? Think for a minute and then raise your hand to share.

STUDENTS DO: Think for a minute and then raise hand to volunteer. Selected students share their thinking.

Note to the Teacher: If no student shares that you cannot get a sum of 1 with two dice, be sure to explain.

2. **TEACHER SAY: Good. Let's see how we will make this graph. I am going to model a couple of rolls for you. Then you and your Shoulder Partner will share a set of dice and make your own graph of your rolls.**

First, I will roll the dice. I rolled a _____ and a _____. I will add those together: _____ + _____ = _____, so I color in the first box above that sum.

TEACHER DO: Model rolling the dice and coloring in one box. Example: 3 + 4 = 7, so color in the first box for 7. If necessary, explain why you are starting with the bottom box instead of the top box. Repeat for two more rolls.

TEACHER SAY: When you play, you will continue to roll and find the sum of the two dice until one of the sums reaches the top of your graph. That is the "winning" sum that answers the question in our graph title. Then you will stop. Remember that even though you are sharing a pair of dice and helping each other add, you should each complete the graph in your own student book. I have a question for you: Will we all have the same answer? Why or why not? Talk to your Shoulder Partner, and then I want to hear your thinking.



STUDENTS DO: Talk to **Shoulder Partner** about the teacher's question. Selected students share their thinking with the group.

TEACHER DO: If necessary, explain that since every pair of students is rolling a different set of dice and collecting their own data, they will not all have the same answers or graphs. Hand out two dice to each pair of students. Hand out (or have students take out) crayons.



STUDENTS DO: Play the game with **Shoulder Partner**: Roll the dice, work together to find the sum, and record. Continue to repeat until the teacher says stop or a sum reaches the top of the graph.

TEACHER DO: Walk around the room and observe students rolling and recording. Offer assistance where necessary and note students who are having difficulty adding the numbers or recording the data. Near the end of the Learn segment, use an **Attention Getting Signal**.

3. **TEACHER SAY: What fun that was rolling and recording to answer the question "Which Sum Is Rolled the Most?" Bring the dice back to me and return to your seats with your student book open to the graph you just created.**



STUDENTS DO: Return dice and sit down with student book open to their graph.

TEACHER SAY: Let's see which sums were rolled the most today. Look at your graph. When I call a sum, if you rolled that sum the most and have the highest bar in that column, stand up.

TEACHER DO: Call out each sum.



STUDENTS DO: Stand up when their winning sum is called and then sit down.

TEACHER SAY: Wow. We had a lot of winners for some sums and only a few for others. Everyone's graph looks different, since you all had different data, or information, that you added to your bar graph. We can find out different things from each of your graphs and ask different questions. Keep out your student books with your graphs.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today you worked with a partner to make your own bar graph for the data about sums of two dice. Why do you think some sums came up more than others? Many of you seemed to stand up when I called out 7 and 8, but not as many when I called out 2 or 12. Why do you think that is? Talk to your Shoulder Partner for a minute and give a Thumbs Up when ready to share.**

 **STUDENTS DO:** Think and talk with **Shoulder Partner** about why some sums come up more than others. Give a **Thumbs Up** when ready to share.

TEACHER DO: Use **Calling Sticks** to call on 2 to 4 students to share their questions. If no one brings up the fact that some of these sums have multiple combinations to reach them, point that out explicitly after they share.

TEACHER SAY: Great observations. Some of these sums, like 7 and 8, have many combinations: 3 + 4, 5 + 3, 6 + 1. Other sums like 2 and 12 only have one roll of the dice that can get that sum: 1 + 1 or 6 + 6. I think that is interesting. Put away your student book and pencil for today.

 **STUDENTS DO:** Put away student book and pencil.

Lesson 9 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Interpret a pictograph with a scale of 2.
- Solve put-together and take-apart problems about pictograph data.

LESSON PREPARATION

Create and display a large copy of the Pick a Flower pictograph. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Calendar
- Least
- More
- Pictograph
- Quantity
- Scale

MATERIALS

- Calendar Math area
- Student book and pencil
- Large copy of the Pick a Flower pictograph
- 120 Chart (one chart for each pair of students)



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to identify the current month.



STUDENTS DO: Selected student points to and says the name of the current month and then sits.

TEACHER SAY: **Let's say the names of all of the months together.**



STUDENTS DO: Say the months aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to identify the current day.



STUDENTS DO: Selected student points to and says the name of the current day and then sits.

TEACHER SAY: **Let's say all of the days of the week together. Say them with me as I point.**



STUDENTS DO: Say the days of the week aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to say today's date.



STUDENTS DO: Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year). Student sits.

TEACHER SAY: **Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.**



STUDENTS DO: Say the date aloud with the teacher.

2. **TEACHER SAY:** **What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**



STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.



STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3. **TEACHER SAY: Let's count to see how many days we have been in school.**

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have _______ (student's name) count.



STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, _______ (student's name). There were 8 straws in the Ones pocket and we added 1 stick today, so now we have 9 straws. We have been in school 9 days.

4. **TEACHER DO:** Use **Calling Sticks** to select another student to circle 9 on the 120 Chart.



STUDENTS DO: Selected student circles 9 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 9 with the teacher.

TEACHER SAY: Great work. Soon, you will take turns leading Calendar Math each day. Please be seated.



Learn (40 minutes)

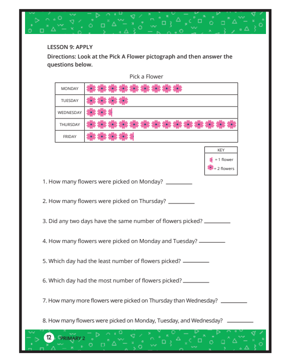
Directions

1. **TEACHER SAY: Today we are going to look at another way to show data. Instead of using a bar graph, sometimes we can draw pictures. A graph that uses pictures to show data is a pictograph. You say it.**



STUDENTS DO: Repeat "pictograph."

TEACHER SAY: Open your student book to page Lesson 9: Apply. You will see a copy of the pictograph in your book along with some questions.



LESSON 9: APPLY

Directions: Look at the Pick A Flower pictograph and then answer the questions below.

Pick a Flower

MONDAY	
TUESDAY	
WEDNESDAY	
THURSDAY	
FRIDAY	

KEY
= 1 flower
= 2 flowers

1. How many flowers were picked on Monday? _______
2. How many flowers were picked on Thursday? _______
3. Did any two days have the same number of flowers picked? _______
4. How many flowers were picked on Monday and Tuesday? _______
5. Which day had the least number of flowers picked? _______
6. Which day had the most number of flowers picked? _______
7. How many more flowers were picked on Thursday than Wednesday? _______
8. How many flowers were picked on Monday, Tuesday, and Wednesday? _______

12 PRIMARY 2



STUDENTS DO: Open student book to the page for Lesson 9.

TEACHER SAY: Take a minute with your Shoulder Partner to look at the pictograph and talk about what you notice about it. What is the same and what is different compared to bar graphs?



STUDENTS DO: Talk to **Shoulder Partner** about similarities and differences between bar graphs and pictographs.

TEACHER DO: After 1 to 2 minutes, use **Calling Sticks** to choose students to share their thinking.



STUDENTS DO: Selected students share their observations.

2. **TEACHER SAY: I heard many good observations. In a pictograph, there are pictures that represent the data. In a bar graph, bars represent the data. Also, in a pictograph, there is a key. The key tells us what quantity each picture represents. Quantity means how many. Put your finger on the key and then raise your hand to share how many each flower on this graph represents.**



STUDENTS DO: Put finger on key and raise hand to volunteer. Selected students answer the question.

TEACHER SAY: Good. In this pictograph, each picture of a flower represents 2 flowers that were picked. Sometimes the key will tell you that each item represents 1, or 10, but not for this pictograph. Sometimes there will be a half a flower. We will talk about that in a minute, but it is important to know that each one of the flowers shown for each day is 2 flowers picked. The key tells us that. Remember when we skip counted by 2s? Since this graph has a scale of 2, let's practice skip counting by 2s. Remember to clap in between each number.

Today, the girls will count from 2 to 50 first and then the boys. Girls, please stand up.

 STUDENTS DO: Girls stand up and count aloud from 2 to 50 by 2s, clapping in between.

TEACHER DO: Count aloud with students, pointing to each number on the 120 Chart. Note who seems to struggle counting by 2s. Repeat the procedure with the boys.

3. **TEACHER SAY: Good work skip counting. That will help us today, but before we can answer any questions about this graph, we need to look at the flower that is cut in half. Point to that one on your pictograph.**

 STUDENTS DO: Point to flower for Wednesday or Friday that is cut in half.

TEACHER DO: Point to the half flower on the large pictograph on the board.

TEACHER SAY: What do you think a half a flower represents? Give me a Thumbs Up when you have an idea.

 STUDENTS DO: Think about half a flower and give a **Thumbs Up**.

TEACHER DO: Call on a student with **Thumbs Up** to share.

TEACHER SAY: Yes. In a pictograph, if you have a half of a picture, that means it represents one half of the number shown in the key. In our pictograph, each flower represents 2, so half of a flower represents HALF of 2: One. So, for Friday, we can count all the whole flowers by 2s, and then add one more for the half a flower. Let's do that together. We will touch each flower as we count.

 STUDENTS DO: Touch each flower and count aloud with the teacher.

TEACHER SAY: On Friday, 9 flowers were picked. 4 whole flowers—2, 4, 6, 8—and then one half of a flower for ONE more, making the total 9.

TEACHER DO: Write 8 + 1= 9 on the board.

4. **TEACHER SAY: You are going to work with your Shoulder Partner to answer some questions about the data in this pictograph. Some of the questions will require you to look at only one day. Some will require you to compare two or more days and either add or subtract.**

TEACHER DO: Point to the Pick a Flower pictograph on the board.

TEACHER SAY: How many flowers were picked on Monday? Talk to your Shoulder Partner and give a Thumbs Up when you have an answer.

 STUDENTS DO: Work with **Shoulder Partner** to find the number of flowers that were picked on Monday. Give a **Thumbs Up** when ready. Selected students share their answer and explain how they found the answer.

TEACHER SAY: Great. 18 flowers were picked on Monday.

TEACHER DO: Model how to count each flower again, especially if students who shared did not model accurately or did so quickly. Make sure students can count by 2s.

TEACHER SAY: Let's try another question.

TEACHER DO: Ask students the next question: How many flowers were picked on Thursday? Continue to work through the questions with students.



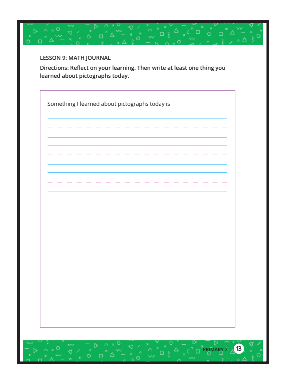
STUDENTS DO: For each question, work with **Shoulder Partner** to find and record the answers. Then give a **Thumbs Up** when ready. Selected students share their answer and explain how they found the answer.



Reflect (5 minutes)

Directions

Note to the Teacher: It is important for students to share with the group how they are solving these problems. Allow time for them to explain their thinking and demonstrate the strategies they are using. This will help support struggling learners and help them use math language as they are describing their thinking.



1. **TEACHER SAY:** **Good work today looking at this new type of graph, a pictograph. Open your student book to page Lesson 9: Math Journal.**



STUDENTS DO: Open student book to the Math Journal for Lesson 9.

TEACHER DO: Write the following sentence on the board: Something I learned about pictographs today is___________.

TEACHER SAY: **Today I want you to finish the sentence I wrote on the board: Something I learned about pictographs today is _____. When you are finished, share your journal entry with your Shoulder Partner.**



STUDENTS DO: Write or draw a response to the sentence on the board. When finished, share their journal entry with their **Shoulder Partner**.

TEACHER DO: Walk around and observe students as they work and talk. Give them 2 to 3 minutes to draw or write something to finish the sentence in their journal and share their thinking.

TEACHER SAY: **You did a wonderful job with pictographs today. I learned so much from you sharing your thinking and strategies. Put your student book and pencil away for today.**



STUDENTS DO: Put away student book and pencil.

Lesson 10 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Create a bar graph using data from a pictograph.
- Interpret data in a bar graph with a scale of 2.

PREPARATION

Display the large copy of the Pick a Flower pictograph from Lesson 9.

Create and display a blank bar graph. See Chapter Preparation for the Teacher for detailed instructions.

Write the following on the board:

Graph Elements:

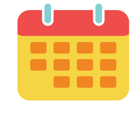
- Title
- Horizontal label
- Vertical label
- Categories labeled
- Scale
- Colorful bars

KEY VOCABULARY

- Bar graph
- Calendar
- Columns
- Data
- Horizontal
- Key
- Pictograph
- Rows
- Vertical

MATERIALS

- Calendar Math area
- Student book and pencil
- Large Pick a Flower pictograph from Lesson 9
- Large blank bar graph
- Crayons



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to identify the current month.

 **STUDENTS DO:** Selected student points to and says the name of the current month and then sits.

TEACHER SAY: **Let's say the names of all of the months together.**

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to identify the current day.

 **STUDENTS DO:** Selected student points to and says the name of the current day and then sits.

TEACHER SAY: **Let's say all of the days of the week together. Say them with me as I point.**

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Use **Calling Sticks** to select a student to say today's date.

STUDENTS DO: Selected student goes to the teacher and says the date aloud: Today is (day) the (date) of (month) (year). Student sits.

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

STUDENTS DO: Say the date aloud with the teacher.

2. TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.

STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3. TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Use **Calling Sticks** to select a student to place 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? Let's have ______ (student's name) count.

STUDENTS DO: Selected student takes the counting straws out of the Ones pocket and counts them aloud.

TEACHER SAY: Thank you, ______ (student's name). There were 9 straws in the Ones pocket and we added 1 stick today, so now we have 10 straws. We have been in school 10 days.

4. TEACHER DO: Use **Calling Sticks** to select another student to circle 10 on the 120 Chart.

STUDENTS DO: Selected student circles 10 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

STUDENTS DO: Count aloud to 10 with the teacher.

5. TEACHER SAY: We have been in school 10 days. We have 10 straws in our Ones pocket. Does anyone remember the rule about how many straws we can have in the Ones pocket? Give me a Thumbs Up if you remember.

STUDENTS DO: Give a **Thumbs Up** if they remember. Selected students share their ideas.

TEACHER SAY: The rule is that we can only fit 9 straws or 9 bundles in a place value pocket. Now that we have 10 straws, we have to bundle them together and move the bundle to the Tens pocket.

TEACHER DO: Use **Calling Sticks** to select a student to bundle and move the straws.

STUDENTS DO: Selected student bundles and moves straws, placing them in the Tens pocket.

TEACHER SAY: Great thinking. Please be seated.



Learn (40 minutes)

Directions

Note to the Teacher: Today students will create a bar graph with a partner using the data from the Pick a Flower pictograph from Lesson 9. The bar graphs students create can serve as an informal assessment. Today's procedure describes students copying a graph into their student book after they create it with the teacher. Another option is to have students create the graph in their student book and the class graph at the same time.

1. TEACHER SAY: **Who can remind me what we did yesterday in math class? Raise your hand if you would like to help me.**



STUDENTS DO: Raise hand to volunteer. Selected students describe what they did in Lesson 9.

TEACHER SAY: **Thank you for helping us remember what we did in math class yesterday. Today we are going to use the data from the Pick a Flower pictograph to create a bar graph. The bar graph will show the same information as the pictograph, but in a different way.**

On the board I have a copy of the Pick a Flower pictograph and a blank bar graph. I have also listed things we must include in our bar graph.

TEACHER DO: Read aloud the list of elements that need to be included in the bar graph.

2. TEACHER SAY: **We have been working with data and graphs for many days, so I would like you to help me figure out how to create a bar graph that shows the same data on the pictograph. Who can help me with the title? Raise your hand if you know what the title should be.**



STUDENTS DO: Raise hands to volunteer. Selected students share their thinking.

TEACHER SAY: **Yes, the title should match the other graph since they will show the same data. I will write that on our new bar graph.**

TEACHER DO: Write the title on the large bar graph.

TEACHER SAY: **Now we can check that off of our list.**

TEACHER DO: Have the student who supplied the answer go to the board make a checkmark (or other mark) next to the word "Title" on the list of graph elements.



STUDENTS DO: Selected student checks off Title on the list of graph elements.

TEACHER DO: Repeat the process for the "Horizontal label." Engage students in conversation about how they are coming up with answers.



STUDENTS DO: Add a label to the horizonal axis. Selected student checks off "Horizontal label" in the list of graph elements.

3. TEACHER SAY: **We also need a label for the vertical side and numbers for the bars. Let's think about what this side of the graph is telling us. It has numbers, so it is telling us a quantity—how many—but how many of what? Think for a moment and then give me a Thumbs Up when you think you know.**



STUDENTS DO: Think about the data in the graph and give a **Thumbs Up** to volunteer. Selected students share their answers and explain their thinking.

TEACHER DO: If necessary, explain to students that the numbers on the vertical side of the graph tell us how many flowers were picked, so the label should be Number of Flowers. Write the label on the graph and have a student check off "Vertical label" on the list of graph elements. Because the key on the pictograph is 2, help students number the bars on the vertical axis of the graph and check off "Scale," as well.



STUDENTS DO: Add a vertical label and scale to the bar graph. Selected students checks off both items on list of graph elements.

4.TEACHER SAY: Now we are ready to add data. Let's look at how we can take the data from the pictograph and make a bar for Wednesday. How many flowers were picked on Wednesday? Raise your hand if you would like to share.



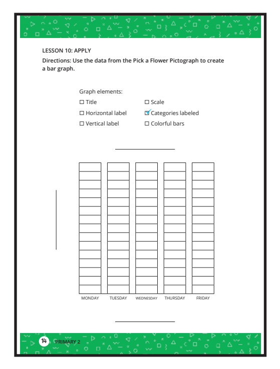
STUDENTS DO: Raise hand to share. Selected students answer the question.

TEACHER SAY: Good. On Wednesday, 5 flowers were picked. Remember that each flower represented 2, so 2, 4—and a half of 2 is 1—so the half flower equals 1. 4 plus 1 equals 5. We have to create a bar that shows that 5 flowers were picked, but our bar graph only shows 2, 4, 6, 8, and so on. Talk to your Shoulder Partner about how we can show 5 on our bar graph. Then give a Thumbs Up if you want to share your thinking.



STUDENTS DO: Talk to **Shoulder Partner** about how to represent 5 on the graph. Give a **Thumbs Up** to volunteer. Selected students share their thinking.

TEACHER DO: If necessary, explain that the bar can show 5 by stopping halfway between 4 and 6. Make sure students understand that 5 is in between 4 and 6, so a bar that stops in between the lines for 4 and 6 represents 5. Select a student to color in the bar for Wednesday.



LESSON 10: APPLY

Directions: Use the data from the Pick a Flower Pictograph to create a bar graph.

Graph elements:

- ☐ Title
- ☐ Horizontal label
- ☐ Vertical label
- ☐ Scale
- ☑ Categories labeled
- ☐ Colorful bars

MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY

14 PRIMARY 2



STUDENTS DO: Selected student colors in the bar for Wednesday.

5.TEACHER SAY: Thank you for your help. I think you are ready to work on your own to create the bar graph. Open your student book to page Lesson 10: Apply. You will see a blank bar graph on the page. Take out your crayons (or hand out crayons if you store them for students).



STUDENTS DO: Open student book to the page for Lesson 10 and take out crayons.

TEACHER SAY: The first thing you will do is copy the information from our large bar graph at the front of the room. The bar graph in your book should look like the one on the board. However, you can use any color you like to color in the bar. I will give you a few minutes to do that now.



STUDENTS DO: Copy the information from the large bar graph onto the bar graph in their student book.

TEACHER DO: Walk around and observe students as they work. Work with students who need additional help or ask **Shoulder Partners** to help, if possible. When students are finished copying, continue with instructions.

6.TEACHER SAY: You will work with your Shoulder Partner to finish the rest of the graph. Take the pictograph data and show that same data on your bar graph. Are there any questions?



STUDENTS DO: Ask questions, if necessary, and then begin to work with their **Shoulder Partner**, converting the pictograph to a bar graph for the rest of Learn time.

TEACHER DO: Answer questions. Walk around the room, supporting students that are having difficulty taking the data from the pictograph and moving it onto the bar graph. Make note of students who may need additional instruction or review. Also, note partners who work well together and those who might need to be moved or reconfigured.

As the end of Learn time approaches, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: I saw a lot of hard work today creating a bar graph using data from a pictograph. For Reflect, we will see your final product. Put away your crayons and leave your student book open to the bar graph you created.



STUDENTS DO: Put away crayons. Leave student book open to the page for Lesson 10.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we are going to do a Gallery Walk. You will walk around the room looking at each other's graphs. Think about how your graph is similar to or different from your friends' graphs.**

 **STUDENTS DO:** Walk around class looking at other students' graphs.

TEACHER DO: After about 2 minutes, use **Attention Getting Signal**. Have students return to their seats.

TEACHER SAY: Give me a Thumbs Up if you would like to share with the group what you noticed.

 **STUDENTS DO:** Give a **Thumbs Up** to share. Selected students share their observations and thoughts.

TEACHER SAY: Great job. We have spent a lot of time working with graphs. We have made graphs and answered questions about them. We have learned about the parts of a graph and how pictographs are different than bar graphs. We will continue to work with graphs throughout the year, but for now give your Shoulder Partner a high five.

 **STUDENTS DO:** Give **Shoulder Partner** a high five.

PRIMARY 2

Mathematics

WHO AM I?

Chapter 2

Lessons 11 to 20

Chapter Overview

Who Am I?

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 11 to 20, students will work toward the following learning indicators:

B. OPERATIONS AND ALGEBRAIC THINKING:

1.b. Fluently add and subtract within 20 using mental strategies.
1.c. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
1.d. Solve addition and subtraction problems within 100 with one unknown in any position within the equation.
1.e. Recall all sums of two one-digit numbers.

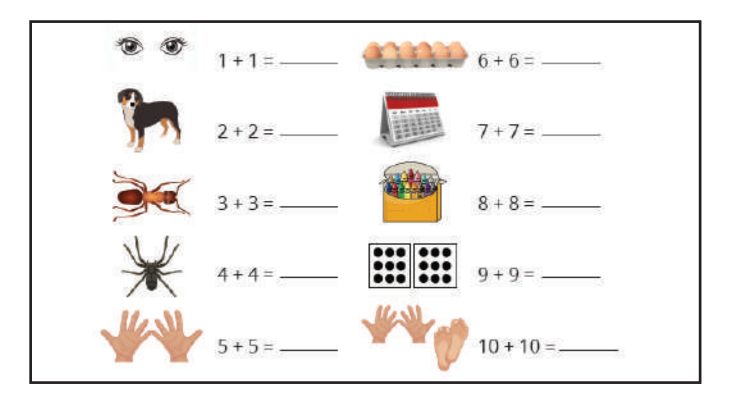
CH 2 Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
11	**Students will:** • Participate in Calendar Math activities. • Apply the mental math strategy of adding doubles. • Solve addition problems.
12	**Students will:** • Participate in Calendar Math activities. • Apply the mental math strategy of counting on from the bigger number to add. • Apply the mental math strategy of counting on from the smaller number to subtract. • Solve addition and subtraction problems.
13	**Students will:** • Participate in Calendar Math activities. • Apply the mental math strategy of adding or subtracting 10. • Solve addition and subtraction problems.
14	**Students will:** • Participate in Calendar Math activities. • Apply the mental math strategy of making tens to add or subtract. • Solve addition and subtraction problems.
15	**Students will:** • Participate in Calendar Math activities. • Apply mental math strategies to solve addition story problems.
16	**Students will:** • Participate in Calendar Math activities. • Apply mental math strategies to solve subtraction story problems.
17	**Students will:** • Participate in Calendar Math activities. • Solve addition problems to find a missing addend. • Apply mental math strategies to solve addition problems.
18	**Students will:** • Participate in Calendar Math activities. • Solve subtraction problems to find a missing subtrahend. • Apply mental math strategies to solve subtraction problems.
19	**Students will:** • Participate in Calendar Math activities. • Solve problems to find a missing addend or subtrahend. • Apply mental math strategies to solve addition and subtraction problems.
20	**Students will:** • Participate in Calendar Math activities. • Apply mental math strategies to add one- and two-digit numbers.

Note to the Teacher: Many of the mental math strategies in this chapter are review from Primary 1. In Primary 1, students worked on counting on, making ten, decomposing a number leading to a ten, using the relationship between addition and subtraction, and creating equivalent but easier or known sums. Base your pacing of lessons in this chapter on how well students recall and Apply this information from last year.

Chapter Preparation for the Teacher

- For Lesson 11:
  - Create a copy of the Doubles Chart below (write on board or create poster).
  - Create a large blank poster titled Mental Math Strategies. Each time students learn a new strategy, you will add it to the poster.



- For Lesson 14:
  - Create a blank Making Tens Chart for the class to fill in together.

1 +		= 10	6 +		= 10
2 +		= 10	7 +		= 10
3 +		= 10	8 +		= 10
4 +		= 10	9 +		= 10
5 +		= 10	10 +		= 10

- For Lesson 17:
  - Create the following posters:
    - * Poster showing 7 hearts
    - * Poster showing 12 hearts
    - * Poster showing 3 stars
    - * Poster showing 13 stars

- For Lesson 18:
  - Create the following posters:
    - * Poster showing 15 smiley faces
    - * Poster showing 9 smiley faces
    - * Poster showing 20 candies
    - * Poster showing 11 candies

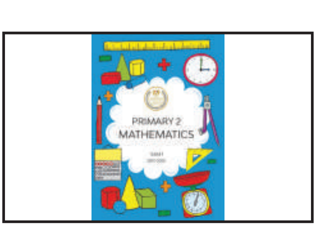
- For Lesson 20:
  - Obtain dice with numbers 1 to 6 (one die per group of 3 or 4 students).
    - * Reuse the dice you used or created in Chapter 1. If you need to create more, use the Blackline Master in this Teacher Guide.

Materials Used

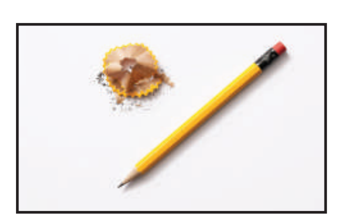
Calendar Math area



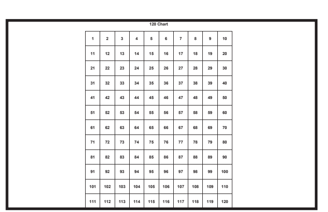
Student book



Pencil



120 Chart



Dice



Mental math strategies poster

Doubles chart

Heart and star poster

Smiley face and candy poster

Making tens chart

Lesson 11 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Apply the mental math strategy of adding doubles. • Solve addition problems.	• Calendar • Doubles • Mental math • Strategy • Sum	• Calendar Math area • Doubles Chart • Mental Math Strategies poster • Student book and pencil

LESSON PREPARATION

Create and display a copy of the Doubles Chart (on the board or on a poster). See Chapter Preparation for the Teacher for detailed instructions.

Create a large blank poster titled Mental Math Strategies. Each time students learn a new strategy, add it to the poster.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

 **STUDENTS DO:** Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

 **STUDENTS DO:** Helper works with the teacher to count the 10 straws in the Tens pocket and the 1 straw in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There is 1 straw in the Ones pocket. If we add them together, we get 11, so we have been in school 11 days.

 **STUDENTS DO:** Helper circles 11 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

 **STUDENTS DO:** Count aloud to 11 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Soon you will take turns leading Calendar Math on your own. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of ______. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?

 **STUDENTS DO:** Raise hands to answer questions.

5.TEACHER SAY: Now I want us to count to 120. But today, we are going to count by 5s. Remember, when we count by 5s, we are only going to say every 5th number from our 120 Chart. I will point to them as we say the numbers aloud.

TEACHER DO: Point to the numbers on the 120 Chart as the students count aloud.

 **STUDENTS DO:** Count by 5s to 120.



Learn (40 minutes)

Directions

Note to the Teacher: There are two parts to today's Learn section. You may find that some students will need more time with one part, so slow the pace if needed or extend the learning to the next day.

1.TEACHER SAY: In math, there are so many ways to solve addition and subtraction problems. We are going to work on ways to solve these problems using MENTAL MATH STRATEGIES over the next few days. This means we will think about the numbers in our minds in lots of ways to find the answers. The first MENTAL MATH STRATEGY we are going to practice is called Doubles. You may remember this strategy from last year, but let's do a quick review. Doubles is when you think about adding two numbers that are the same. Let me show you what I mean.

TEACHER DO: Hold up 3 fingers on one hand and 3 fingers on the other hand.

TEACHER SAY: What do we get if we put 3 and 3 together?

 **STUDENTS DO:** Raise hands to volunteer. Selected students share their answers.

2. TEACHER SAY: Yes, 3 plus 3 is 6. You will practice this with a partner now. Please turn to your Shoulder Partner and put one hand behind your back. With the other hand, each of you show 4 fingers.

 **STUDENTS DO:** Turn to their **Shoulder Partner**, put one hand behind their back, and hold out 4 fingers on the other hand. Together, partners figure out the sum of 4 and 4.



TEACHER SAY: So what do we get when we add 4 and 4? Call out together.

3. TEACHER SAY: Yes, 4 plus 4 is 8. You will now work with your Shoulder Partner to practice finding doubles. Open your student book to the page Lesson 11: Apply. Complete only the table at the top of the page.

 **STUDENTS DO:** Turn to Lesson 11: Apply in the student book and work with partner to complete the doubles table.

TEACHER DO: When students are finished, call a pair of **Shoulder Partners** to the board to fill in the class Doubles Chart. Encourage students to change their answers if they got the incorrect answer.

 **STUDENTS DO:** Selected students show their work at the board.

4. TEACHER SAY: Now we will Apply the Doubles strategy to help us do some mental math. Since we know 3 + 3 equals 6, we can use this double to help us solve 3 + 4. 3 plus 4 is the same as double 3 plus 1 more. Who can tell us the answer?

 **STUDENTS DO:** Selected students answer.

TEACHER SAY: Yes, the answer is 7. Let's try another one together. What double can help us solve 6 + 7?

TEACHER DO: Call on a student using the **Calling Sticks**. Listen for the answer, 6 + 6. Ask students to explain their thinking. Listen for "6 + 7 is close to 6 + 6, so since I know the doubles of 6, I can do double 6 plus 1 more." Some students may also identify 7 + 7 as a helpful double since 6 + 7 is 1 less than 14.

5. TEACHER SAY: Using the mental math strategy Doubles can help us quickly solve math problems in our heads without using our fingers or counters. Now you will work on your own. Use the Doubles mental math strategy to solve the addition problems in your student book.

 **STUDENTS DO:** Work independently to solve the addition problems by applying the Doubles mental math strategy in their student books.

TEACHER DO: Walk around the room to assist students as needed. Take note of students who may need additional instruction.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we practiced using the mental math strategy of Doubles. Our goal is to be able to quickly solve some addition problems in our heads. You just completed some addition problems in your student book. I want you to share your answers with your Shoulder Partner and compare them to see if you both came up with the same answer. Then I want you to talk to each other about how you used the Doubles strategy to solve the problems. You have 2 minutes.**



STUDENTS DO: Share and compare answers with their **Shoulder Partners**. Discuss how they used the Doubles strategy to solve the problems.

TEACHER DO: Allow students 2 minutes to share. Walk around the room to check answers and listen to explanations made by students. Take note of students who may need additional instruction.

TEACHER SAY: Thank you for working so hard today. Let's add the Doubles strategy to the Mental Math Strategies poster.

TEACHER DO: Write Doubles on the Mental Math Strategies poster you prepared.

TEACHER SAY: Give yourselves a pat on the back.



STUDENTS DO: Give themselves a pat on the back.

Lesson 12 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Apply the mental math strategy of counting on from the bigger number to add.
- Apply the mental math strategy of counting on from the smaller number to subtract.
- Solve addition and subtraction problems.

KEY VOCABULARY

- Bigger
- Calendar
- Counting on
- Mental math
- Smaller
- Strategy
- Sum

MATERIALS

- Calendar Math area
- Mental Math Strategies poster
- Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

3. **TEACHER SAY: Let's count to see how many days we have been in school.**

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

 **STUDENTS DO:** Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

 **STUDENTS DO:** Helper works with the teacher to count the 10 straws in the Tens pocket and the 2 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 2 straws in the Ones pocket. Ten and 2 more is 12, so we have been in school 12 days.

 **STUDENTS DO:** Helper circles 12 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

 **STUDENTS DO:** Count aloud to 12 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Soon you will take turns leading Calendar Math on your own. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4. **TEACHER DO:** Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:
   - Today is ____. What will tomorrow be?
   - We are in the month of _____. What was last month?
   - What was yesterday?
   - How many days are in this month?
   - Which day/month comes after ____?

 **STUDENTS DO:** Raise hands to answer questions.

5. **TEACHER SAY: Like yesterday, I want us to count to 120 by 5s. But today we are going to have the girls start and say one number and then the boys will say the next. We will go back and forth until we reach 120. Remember, when we count by 5s, we are only going to say every 5th number from our 120 Chart. I will point to them as we say the numbers aloud.**

TEACHER DO: Point to the numbers on the 120 Chart as the students count aloud.

 **STUDENTS DO:** Count by 5s to 120. Girls start with 5 and then the boys say 10, and so on.



Learn (40 minutes)

Directions

Note to the Teacher: There are three parts to today's Learn section (identifying the bigger number, counting on from the bigger number in addition, and counting on from the smaller number in subtraction). You may find that some students will need more time with one part, so slow the pace if needed or extend the lesson to the next day.

1. TEACHER SAY: **Today we are going to practice two more MENTAL MATH STRATEGIES. Both of today's mental math strategies start by noticing which is the bigger number in a problem. Let's do a quick practice to review comparing numbers.**

TEACHER DO: Write two numbers on the board (for example, 7 and 12).

TEACHER SAY: **Which of these two numbers is bigger?**

 STUDENTS DO: Call out answer.

Note to the Teacher: If students do not understand what "bigger number" means, you can explain that it means the one with a larger quantity. Would students rather have 7 pieces of candy or 12, for example.

TEACHER SAY: **That is right. 12 is bigger than 7.**

TEACHER DO: Repeat this a few more times to ensure all students are able to quickly identify the bigger number.

2. TEACHER SAY: **Great work. Now we are going to practice adding these numbers by using a mental math strategy called Counting On. If we see 7 + 12, it is easier for our brains to start with the bigger number—12— and then count on the smaller number—7. You can use your fingers or look at a number line to help you. Let's try this together.**

TEACHER DO: Write 7 + 12 = on the board. Start at 12, and then hold up 7 fingers and count on 1 for each finger.

TEACHER SAY: **When I added, I actually started with 12 because it is the bigger number. Then I counted on 7 more to get 19. Let's try a few together. Remember to use the Counting On strategy.**

TEACHER DO: Write a few more addition problems on the board (addends up to 20). Walk the class through each one by asking them to identify the bigger number, then counting on the smaller number to find the answer.

 STUDENTS DO: Use the Counting On strategy to solve addition problems with the teacher. Call out together to answer when prompted.

3. TEACHER SAY: **You are doing a great job. We can also use the Counting On strategy to solve subtraction problems, but it is a bit different. When we ADD two numbers together, it is easier to start with the bigger number. When we SUBTRACT two numbers, it is easier to start with the smaller number and count on to the bigger number to find the difference. Let me show you.**

TEACHER DO: Write 12 – 7 = _____ on the board.

TEACHER SAY: **Which is the smaller number?**

 STUDENTS DO: Call out the answer.

TEACHER SAY: **That is right. 7 is smaller, so now I will count on from 7 until I get to 12. Watch.**

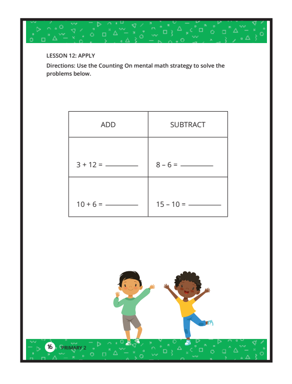
TEACHER DO: As you count from 7 to 12, hold up one finger for each number you say.

TEACHER SAY: **The tricky part here is to remember to start putting your fingers up AFTER you say the smaller number in the problem. I did not put a finger up until I said 8. Watch me again.**

TEACHER DO: **Model** the solution to 12 – 7 again. Emphasize that you do not start counting on until after you say 7.

TEACHER SAY: **Let's try a few problems like this together. Remember to use the Counting On strategy, but this time start with the smaller number and count on to the bigger number.**

TEACHER DO: Write a few more subtraction problems on the board (all numbers up to 20). Walk the class through each one by asking them to identify the smaller number and then count on to find the difference.


LESSON 12: APPLY

Directions: Use the Counting On mental math strategy to solve the problems below.

ADD	SUBTRACT
3 + 12 = ____	8 – 6 = ____
10 + 6 = ____	15 – 10 = ____



STUDENTS DO: Use the Counting On strategy to solve subtraction problems with the teacher. Call out together to answer when prompted.

4. **TEACHER SAY:** **You are all doing a fantastic job using the Counting On strategy. Now please take out your student book and turn to the page Lesson 12: Apply. Solve the addition and subtraction problems on your own using the Counting On strategy. Pay attention to the signs because some of these problems are addition and some are subtraction.**



STUDENTS DO: Work independently to apply the Counting On strategy to solve problems in the student book.

TEACHER DO: Walk around the room and take note of students who are struggling with this concept. At the end of the Learn segment, have students compare their answers with those of their **Shoulder Partners** and talk about how they solved the problems.



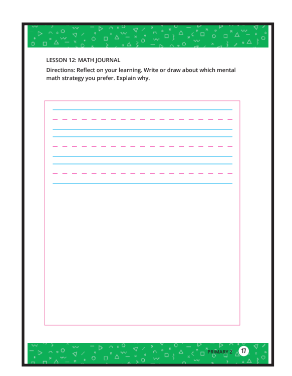
Reflect (5 minutes)

Directions

1. **TEACHER SAY:** **Yesterday we practiced the mental math strategy called Doubles. Today we practiced the strategy called Counting On. Think about which mental math strategy you prefer and why you like it.**



STUDENTS DO: Think quietly for about 30 seconds.


LESSON 12: MATH JOURNAL

Directions: Reflect on your learning. Write or draw about which mental math strategy you prefer. Explain why.

TEACHER SAY: **Turn in your student book to the page Lesson 12: Math Journal. Please write or draw about which mental math strategy you prefer and why. You have 2 minutes.**



STUDENTS DO: Write or draw about their preference and why.

TEACHER DO: If time permits, allow a few students to share their thinking with the whole group.

TEACHER SAY: **You all worked so hard today. Great job. Let's add the Counting On strategy to our Mental Math Strategies poster. While I do that, you may put your student book and pencil away.**

TEACHER DO: Add the Counting On strategy to the poster.



STUDENTS DO: Put away their student book and pencil.

Lesson 13 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Apply the mental math strategy of adding or subtracting 10.
- Solve addition and subtraction problems

LESSON PREPARATION

No new preparation needed.

KEY VOCABULARY

- Calendar
- Column
- Difference
- Mental math
- Pattern
- Row
- Strategy

MATERIALS

- Calendar Math area
- 120 Chart
- Mental Math Strategies poster
- Student book and pencil



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1.**TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: **Let's say the names of all of the months together.**

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: **Let's say all of the days of the week together. Say them with me as I point.**

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: **Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.**

 **STUDENTS DO:** Say the date aloud with the teacher.

2.**TEACHER SAY:** **What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.



STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.



STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 3 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 3 straws in the Ones pocket. Ten and 3 more is 13, so we have been in school 13 days.



STUDENTS DO: Helper circles 13 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 13 with the teacher. Helper sits.

4.TEACHER SAY: Now I want us to count to 120. But today, we are going to count by 10s. Remember, when we count by 10s, we are only going to say every 10th number from our 120 Chart. I will point to them as we say the numbers aloud.

TEACHER DO: Point to the numbers on the 120 Chart as the students count aloud.



STUDENTS DO: Count by 10s to 120.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, you will help students recognize and use patterns in the 120 Chart. There are three parts to today's Learn section (identifying patterns in the 120 Chart, adding tens, and subtracting tens). You may find that some students will need more time with one part, so slow the pace if needed or extend the lesson to the next day.

1.TEACHER SAY: For the last two days we have been using different mental math strategies. These strategies will help us when we get to more difficult math. Today we will be using our 120 Chart to learn two new mental math strategies—Adding 10 and Subtracting 10. The 120 Chart can help us see patterns in the 120 Chart. Those patterns can help us solve math problems. Let's look at the 120 Chart together. What do you notice as you look across each row and down each column? Turn and Talk to your Shoulder Partner about what you notice.



STUDENTS DO: Turn to **Shoulder Partner** and share what they notice in the rows and columns of the 120 Chart.

TEACHER DO: Listen as students talk. Particularly listen for students who notice that in each row, all boxes count by 1 (1, 2, 3, 4, 5...) and in each column, the digit in the Ones place stays the same and the digit in the Tens place increases by 1 (3, 13, 23, 33, 43...). Students may not use place value language but listen for the concepts. After a few minutes, use an **Attention Getting Signal** to bring the class back together. Then call on a few students to share what they noticed. If no one noticed the column pattern, point it out.

3.TEACHER SAY: You are all so observant. There are so many patterns in the 120 Chart. We can use the patterns we noticed in the columns to help us Add 10 and Subtract 10, the mental math strategies we will practice today. Let me show you what this looks like.

TEACHER DO: Write on the board 4 + 10 =_____ .

TEACHER SAY: **I am going to use the 120 Chart to solve this problem. I will start at the 4.**

TEACHER DO: **Model** using the 120 Chart to add on 10 from 4, landing on 14.

TEACHER SAY: **Look, I added 10 and am directly under the 4 square where I started. I wonder if that happens every time I add 10. Let's try another one.**

TEACHER DO: Write 8 + 10 on the board. Start at 8 and add on 10 to land on 18.

TEACHER SAY: **It happened again. How can I use that pattern to help me solve problems where I am adding 10? Share your thinking with your Shoulder Partner. Give me a Thumbs Up when you are ready to share your thinking with the class.**

 **STUDENTS DO:** Share thinking with **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER DO: Confirm or correct students' thinking by explaining that when we add 10 to any number, the digit in the Ones place stays the same and the digit in the Tens place increases by 1, so we can move down one row on the 120 Chart to add 10.

TEACHER SAY: **Let's try some together.**

TEACHER DO: Allow students to practice the strategy Add 10. Write + 10 problems on the board and have students use the 120 Chart to solve them. Have students answer chorally or use **Calling Sticks** to call on individual students.

 **STUDENTS DO:** Solve each problem. Selected students share their answers.

4.TEACHER SAY: **You are doing a great job using this strategy. Let's use the same strategy to solve some subtraction problems. When we add 10, we move down one row on the 120 Chart. What do you think will happen if we subtract 10? Turn and Talk to your Shoulder Partner for 1 minute. Give me a Thumbs Up when you are ready to share your thinking.**

 **STUDENTS DO:** **Turn and Talk** to a **Shoulder Partner**. Give a **Thumbs Up** when ready to share. Selected students share their thinking.

TEACHER SAY: **What great mathematicians you are. Let's check your thinking to see if you are correct.**

TEACHER DO: Write on the board: 15 – 10 = _____. **Model** how to use the 120 Chart to move back 10 spaces, landing on 5.

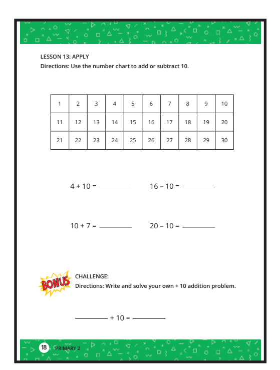
TEACHER SAY: **Was your thinking correct? When we subtract 10, we know that the digit in the Ones column stays the same, and the digit in the Tens column decreases by 1, so 15 – 10 = 5. We can move back one row on the 120 Chart to show that we are taking away a Ten.**

TEACHER DO: Allow students to practice the strategy Subtract 10. Write – 10 problems on the board and have students use the 120 Chart to solve them. Have students answer chorally or use **Calling Sticks** to call on individual students.

STUDENTS DO: Solve each problem. Selected students share their answers.

5.TEACHER SAY: **Now you are ready to try some on your own. Please get out your student book and turn to the page Lesson 13: Apply. There is a number chart on the page. Solve problems 1 to 4 on your own using the Add 10 and Subtract 10 strategies. If you finish early, do the Challenge problem.**

TEACHER DO: Read the student book directions aloud to students.


LESSON 13: APPLY

Directions: Use the number chart to add or subtract 10.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

4 + 10 = ______ 16 – 10 = ______

10 + 7 = ______ 20 – 10 = ______

BONUS CHALLENGE:

Directions: Write and solve your own + 10 addition problem.

______ + 10 = ______

18 PRIMARY 2

STUDENTS DO: Work independently to solve the first set of problems in the student book, and if time permits, complete the Challenge section.

TEACHER DO: As students work, walk around to notice who needs more help. As students finish, they can work on the Challenge section if they successfully mastered the first part.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we practiced using the mental math strategies of Add 10 and Subtract 10 using the 120 Chart. Share your answers with your Shoulder Partner and compare them to see if you both came up with the same answer. Talk to each other about how you used the Adding 10 and Subtracting 10 strategies on the 120 Chart to solve the problems. You have 2 minutes.**



STUDENTS DO: Share and compare answers with their **Shoulder Partners**. Discuss how they used the strategies Add 10 and Subtract 10 on the 120 Chart to solve the problems.

TEACHER DO: Walk around the room to check answers and listen to explanations made by students. Take note of students who may need additional instruction.

TEACHER SAY: Great work today, class. Let's put the Add 10 and Subtract 10 strategies to our Mental Math Strategies poster.

TEACHER DO: Add the strategies to the class poster.

TEACHER SAY: Let's finish the math lesson by giving yourself a pat on the back.



STUDENTS DO: Reach up and pat their back.

Lesson 14 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Apply the mental math strategy of making tens to add or subtract. • Solve addition and subtraction problems.	• Addend • Calendar • Combination • Mental math • Strategy	• Calendar Math area • Making Tens Chart • Mental Math Strategies poster • Student book and pencil

LESSON PREPARATION

Create a blank Making Tens Chart for the class to fill in together. See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: **Let's count to see how many days we have been in school.**

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

 STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: **How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.**

 STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 4 straws in the Ones pocket.

TEACHER SAY: **Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 4 straws in the Ones pocket. Ten and 4 more is 14, so we have been in school 14 days.**

 STUDENTS DO: Helper circles 14 on the 120 chart.

TEACHER SAY: **Let's count all of the circled numbers together.**

 STUDENTS DO: Count aloud to 14 with the teacher. Helper sits.

4.TEACHER SAY: **Raise your hand if you can answer my questions.**

TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of _____. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes before/after ____?

STUDENTS DO: Raise hands to answer questions.

5.TEACHER SAY: **Let's count to 120 by 10s. Today the girls will start and say one number, and then the boys will say the next. We will go back and forth until we reach 120. Remember, when we count by 10s, we are only going to say every 10th number from our 120 Chart. I will point to them as we say the numbers aloud.**

 STUDENTS DO: Count by 10s to 120. Girls start with 10 and then the boys say 20, and so on.



Learn (40 minutes)

Directions

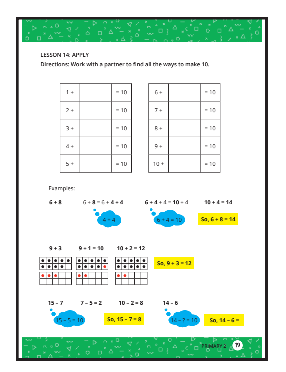
Note to the Teacher: In Primary 1, students used ten frames. The first part of this lesson is a review of all combinations of 10. If students need an additional visual, you can remind them or have them use ten frames. Ten frames may also help students who have a difficult time quickly making tens during subtraction and addition. Make them available as a resource to students if they need them.

1.TEACHER SAY: **Today we are going to look at another mental math strategy. This one is called Making Tens. This may also sound familiar since you did something similar last year in Primary 1. This strategy can help us with addition and subtraction, but let's first review the combinations of 10. I have a chart here called Making Tens. We are going to name all the combinations of numbers that make 10 when we add them together. This means that if we have a 1 here (point to 1), what other number, when added to the 1, will make 10?**

TEACHER DO: Use **Calling Sticks** to select a student to answer. If they do not give the correct answer (9), ask them to show you on their fingers by holding up 1 finger and then counting the rest of their fingers to make 10.

TEACHER SAY: Great. 9 and 1 make 10.

TEACHER DO: Write 9 on the Making Tens chart.



TEACHER SAY: Open your student book to the page Lesson 14: Apply. Work with your Shoulder Partner for 2 minutes to come up with other combinations that make 10. Record your thinking in your student book.

STUDENTS DO: Turn to their **Shoulder Partner** and name as many combinations as they can that make 10.

TEACHER DO: Listen to students as they talk with their partner to make sure they are on the right track. If students are confused, encourage them to use their fingers to find the combinations of 10. Give student partners approximately 2 minutes and then use an **Attention Getting Signal** to bring the group back together.

TEACHER SAY: Let's fill in the rest of our chart. If one of your friends says a combination you do not have, add it to your chart in your student book.

TEACHER DO: Use **Calling Sticks** to select students to help complete the class chart.



STUDENTS DO: Selected students share combinations that make ten until the chart is completed. All students complete the Making Tens chart in the student book.

2. TEACHER SAY: Now I will teach you how to use this information to help you do some mental math.

TEACHER DO: Write 6 + 8 = on the board.

TEACHER SAY: We can make tens with either addend. I will choose the 6. I know that 6 + 4 makes 10.

TEACHER DO: Add to the problem on the board to show your thinking.

$$6 + 8 = ___$$
$$6 + 4 = 10$$

TEACHER SAY: If I take that 4 away from the 8, that leaves 4, because 4 + 4 equals 8.

TEACHER DO: Add to the problem on the board to show your thinking.

$$6 + 8 = ___$$
$$6 + 4 = 10$$
$$4$$

TEACHER SAY: I add that 4 to the 10 and I have the answer: 14.

TEACHER DO: Add to the problem on the board to show your thinking.

$$6 + 8 = ___$$
$$6 + 4 = 10$$
$$4$$
$$10 + 4 = 14$$

TEACHER SAY: Let me show you one more example and then we will talk about it together.

TEACHER DO: Write 9 + 3 = on the board.

TEACHER SAY: We could start with either addend again, but it is easier for me to make 10 with the biggest number here. I know 9 + 1 = 10.

TEACHER DO: Add to the problem on the board to show your thinking.

$$\begin{array}{ccccc} 9 & + & 3 & = & ___ \\ 9 & + & 1 & = & 10 \end{array}$$

TEACHER SAY: If I take that 1 away from the 3, that leaves 2.

TEACHER DO: Add to the problem on the board to show your thinking.

$$\begin{array}{ccccc} 9 & + & 3 & = & ___ \\ 9 & + & 1 & = & 10 \\ & & 2 & & \end{array}$$

TEACHER SAY: Now I can add that 2 to the 10 and I have the answer.

TEACHER DO: Add to the problem on the board to show your thinking.

$$\begin{array}{ccccc} 9 & + & 3 & = & ___ \\ 9 & + & 1 & = & 10 \\ & & 2 & & \\ 10 & + & 2 & = & 12 \end{array}$$

TEACHER SAY: Turn and Talk to your Shoulder Partner about what I just did and how I used the mental math strategy Making Tens to solve this problem.



STUDENTS DO: Talk with their **Shoulder Partner** about the Making Tens mental math strategy.

TEACHER DO: Listen as students talk to each other. Note who has difficulty understanding how one number can break down into two parts (for example, in the last problem, 3 broke down into 1 and 2).

TEACHER SAY: I would like to give two of you a chance to share what you talked about with your Shoulder Partner.

TEACHER DO: Use **Calling Sticks** (or call on two students you heard talking during **Shoulder Partner** time) and have two students share what they noticed about the making tens strategy.

3.TEACHER SAY: You are doing a wonderful job with this tricky strategy. We are now going to see how we can use the same strategy for subtraction problems, and then you will get some time to try this with a partner.

TEACHER DO: Write 15 – 7 = on the board.

TEACHER SAY: We can also use the Making Tens strategy in subtraction problems. To get from 15 to 10, I need to subtract 5. I know this quickly because I remember when we added tens the other day, the digit in the Ones place stays the same and the digit in the Tens place goes up or down 1. If I already take away 5 to get to 10, then I have 2 left from the 7, so 10 – 2 = 8. What I did here was 15 – 5 – 2 = 8.

TEACHER SAY: Let's try one together and then you will work with a partner.

TEACHER DO: Write 14 – 6 = on the board.

TEACHER SAY: What is the first thing we should do in this problem to apply our mental math strategy?

TEACHER DO: Use **Calling Sticks** to call on students. Listen for the answer "Make ten by subtracting 4 from 14" (or something similar).



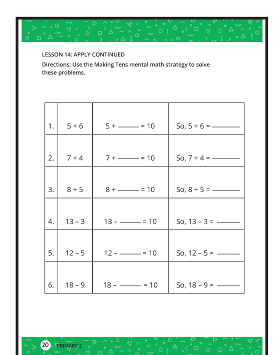
STUDENTS DO: Selected students answer the question.

TEACHER SAY: That is right. Since we are making tens, we start with 14 and have to subtract 4 to get to 10. What should we do next?

TEACHER DO: Use **Calling Sticks** to call on students. Listen for the answer "Take 2 more away from 10 because 2 + 4 is 6" (or something similar).



STUDENTS DO: Selected students answer the question.



LESSON 14: APPLY CONTINUED

Directions: Use the Making Tens mental math strategy to solve these problems.

1.	5 + 6	5 + ______ = 10	So, 5 + 6 = ______
2.	7 + 4	7 + ______ = 10	So, 7 + 4 = ______
3.	8 + 5	8 + ______ = 10	So, 8 + 5 = ______
4.	13 – 3	13 – ______ = 10	So, 13 – 3 = ______
5.	12 – 5	12 – ______ = 10	So, 12 – 5 = ______
6.	18 – 9	18 – ______ = 10	So, 18 – 9 = ______

20 PRIMARY 2

TEACHER SAY: You are on a roll. Yes, so we will take 4 away from 14 to get to 10 and then take 2 more away. So, 10 – 2 is, what, everyone?

STUDENTS DO: Call out the correct answer (8).

4. TEACHER SAY: You will now get to practice the strategy in your student book. Open it to the page Lesson 14: Apply Continued. You may work on your own or with your Shoulder Partner to solve the math problems. Try using the Making Tens mental math strategy since that is what we have been learning. It is okay if you are not perfect at using the strategy yet. We are learning together.

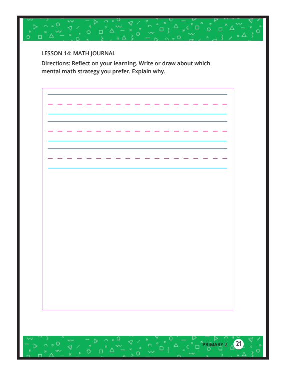


STUDENTS DO: Work independently or with their **Shoulder Partner** to solve problems for this lesson using the Making Tens strategy.



Reflect (5 minutes)

Directions



LESSON 14: MATH JOURNAL

Directions: Reflect on your learning. Write or draw about which mental math strategy you prefer. Explain why.

PRIMARY 2 21

1. TEACHER SAY: We have learned so many mental math strategies over the past few days. We have learned Doubles, Counting on, Adding 10, Subtracting 10, and today we used the strategy Making Tens. Think about which strategy really works for you when doing mental math and why you like it.



STUDENTS DO: Think quietly for about 30 seconds.

TEACHER SAY: Turn to the page Lesson 14: Math Journal in your student book. Write or draw about the mental math strategy you like to use and why. You have 2 minutes.



STUDENTS DO: Write or draw about their preferred math strategy in their journals. Explain why it is they favorite strategy.

TEACHER DO: If time permits, allow a few partners to share their thinking with the whole group.

TEACHER SAY: Let's add our new strategy to our Mental Math Strategies poster.

TEACHER DO: Add Making Tens to the strategy poster.

TEACHER SAY: You all worked so hard today. Wonderful work. You may put away your student book and pencil.



STUDENTS DO: Put away their student book and pencil

Lesson 15 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Apply mental math strategies to solve addition story problems.	• Calendar • Doubles • Mental math • Strategy • Sum	• Calendar Math area • Doubles Chart • Mental Math Strategies poster • Student book and pencil

LESSON PREPARATION

Create and display a copy of the Doubles Chart (on the board or on a poster). See Chapter Preparation for the Teacher for detailed instructions.

Create a large blank poster titled Mental Math Strategies. Each time students learn a new strategy, add it to the poster.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3.**TEACHER SAY: Let's count to see how many days we have been in school.**

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.



STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.



STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 5 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 5 straws in the Ones pocket. If we add them together, we get 11, so we have been in school 15 days.



STUDENTS DO: Helper circles 15 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 15 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Soon you will take turns leading Calendar Math on your own. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.**TEACHER DO:** Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of _____. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?



STUDENTS DO: Raise hands to answer questions.

5.**TEACHER SAY: Now I want us to count to 120. But today, we are going to count by 5s. Remember, when we count by 5s, we are only going to say every 5th number from our 120 Chart. I will point to them as we say the numbers aloud.**

TEACHER DO: Point to the numbers on the 120 Chart as the students count aloud.



STUDENTS DO: Count by 5s to 120.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, students will Apply the strategies they have been learning to solve addition story problems. Students may use any of the mental math strategies they have practiced over the past few days.

1.**TEACHER SAY: Today we are going to solve some story problems. I know you solved story problems last year. Lean and Whisper to your Shoulder Partner what you remember about solving story problems. Give me a Thumbs Up when you are ready to share your thinking.**



STUDENTS DO: **Lean and Whisper** what they remember about solving story problems to their **Shoulder Partner**. Give a **Thumbs Up** when they are ready. Selected students discuss what they remember about solving story problems.

TEACHER SAY: A story problem is a math problem that tells a story and gives us a math problem to solve. Today we are going to use mental math strategies solve some story problems. Let's review the strategies.

TEACHER DO: Use **Calling Sticks** to select a student to read the strategies listed on the Mental Math Strategies poster.

2.TEACHER SAY: Listen to the first story problem carefully because we will not be taking out a pencil and paper. In the morning, Fatima collected 6 flowers from her garden. In the afternoon, she gathered 7 more flowers from her garden. How many flowers did Fatima have in all? Think for a moment about the problem. Then I am going to ask you some questions about it.

 **STUDENTS DO:** Think quietly about the problem for about 30 seconds.

TEACHER DO: Use **Calling Sticks** to select students to answer the questions below. Record their answers on the board.

- How many flowers did Fatima first collect from her garden? (6)
- How many more did she gather? (7)

 **STUDENTS DO:** Selected students answer the questions aloud.

TEACHER SAY: What mental math strategy could we use to find out how many flowers Fatima has in all? Lean and Whisper the answer to your Shoulder Partner. Give me a Thumbs Up if you and your partner have an answer.

 **STUDENTS DO:** **Lean and Whisper** the answer to their **Shoulder Partner**. Give a **Thumbs Up** to volunteer. Selected students answer the question.

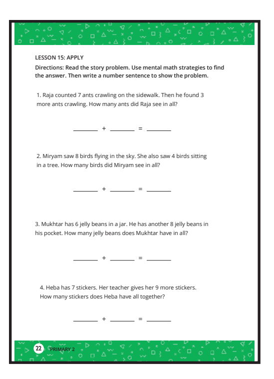
TEACHER SAY: We can add the two numbers using either the mental math strategy Doubles or Counting On. Now, use one of the strategies to solve the problem with your Shoulder Partner. Give me a Thumbs Up when you have an answer.

 **STUDENTS DO:** Solve the problem with their **Shoulder Partner**. Give a **Thumbs Up** when they have an answer. Selected partners share their answer and explain how they used a mental math strategy to solve the problem.

TEACHER SAY: Raise your hand if you used a different mental math strategy to solve the problem.

 **STUDENTS DO:** Raise their hands if they used a different mental math strategy to solve the problem. Selected partners explain the different mental math strategy they used.

TEACHER DO: If the students' answers are incorrect, allow them to ask another student for help or help them work through the problem aloud. Confirm or provide the correct answer: Fatima has 13 flowers in all.



LESSON 15: APPLY

Directions: Read the story problem. Use mental math strategies to find the answer. Then write a number sentence to show the problem.

1. Raja counted 7 ants crawling on the sidewalk. Then he found 3 more ants crawling. How many ants did Raja see in all?

____ + ____ = ____

2. Miryam saw 8 birds flying in the sky. She also saw 4 birds sitting in a tree. How many birds did Miryam see in all?

____ + ____ = ____

3. Mukhtar has 6 jelly beans in a jar. He has another 8 jelly beans in his pocket. How many jelly beans does Mukhtar have in all?

____ + ____ = ____

4. Heba has 7 stickers. Her teacher gives her 9 more stickers. How many stickers does Heba have all together?

____ + ____ = ____

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3.TEACHER SAY: We are going to solve a few more of these in your student book. Please take out your book and turn to the page Lesson 15: Apply. On this page, you will see some story problems. We will read through each story problem together. You can use any of the mental math strategies on our poster to help you find the sum. Try not to draw pictures or use tally marks. After you solve the problem using mental math, write each number sentence in your student book.

TEACHER DO: For each story problem, read the problem aloud and then allow time for students to work independently to solve the problems. Walk around while students are working to help those who may need it. Then have students share their work and strategies with their **Shoulder Partners** and ask volunteers to share their work with the class. Be sure students explain their thinking and their use of the mental math strategy they selected. Confirm correct answers and encourage students to fix their work if necessary.

 **STUDENTS DO:** Listen to each story problem read by the teacher. Work independently to solve each problem using any of the mental math strategies. Record the number sentence in the student book. Share work and strategies with **Shoulder Partner**. Selected students share their work with the class. Correct the work in their student books if necessary.

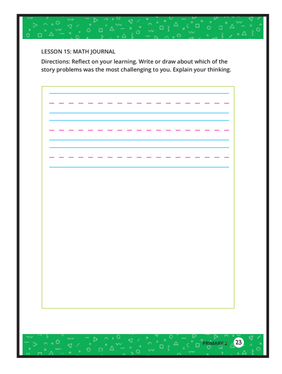
Note to the Teacher: If students are unable to finish during class, consider having them complete the story problems for homework. Remind them they should be using mental math strategies rather than pictures or tally marks.

TEACHER SAY: **Great work today, class. You all are getting very good at using mental math strategies to find the sum.**



Reflect (5 minutes)

Directions



LESSON 15: MATH JOURNAL

Directions: Reflect on your learning. Write or draw about which of the story problems was the most challenging to you. Explain your thinking.

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1.TEACHER SAY: **I would like you to write or draw about which of the four story problems was the most challenging to you. Explain in your journal why you think it was the most challenging. Please turn in your student book to the page Lesson 15: Math Journal.**



STUDENTS DO: Write or draw about which story problem was most challenging and why.

TEACHER DO: Walk around and either look at student work or talk to students to see who is struggling. When finished, have a few students share their thinking with the class if time allows.

Lesson 16 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Apply mental math strategies to solve subtraction story problems.	• Mental math • Story problem • Strategy	• Calendar Math area • Mental Math Strategies poster • Student book and pencil

PREPARATION
No new preparation needed.

Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

 **STUDENTS DO:** Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

 **STUDENTS DO:** Helper works with the teacher to count the 10 straws in the Tens pocket and the 6 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 6 straws in the Ones pocket. Ten and 6 more is 16, so we have been in school 16 days.

 **STUDENTS DO:** Helper circles 16 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

 **STUDENTS DO:** Count aloud to 16 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Soon you will take turns leading Calendar Math on your own. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of ______. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?

 **STUDENTS DO:** Raise hands to answer questions.

TEACHER SAY: I want us to count by 100s to 1,000. Join me as I count to 1,000 by 100s.

 **STUDENTS DO:** Count by 100s to 1,000.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, students will **Model** *the strategies they have been learning to solve subtraction story problems.*

1.TEACHER SAY: Yesterday we solved some addition story problems. Today we are going to solve some subtraction story problems. We will use mental math strategies to solve the problems. Who can help us review the mental math strategies we have learned?

TEACHER DO: Use **Calling Sticks** to select a student to read aloud the mental math strategies on the class poster.

TEACHER SAY: Listen carefully to the first problem. Layla collected 17 stones. She gave 10 to her sister. How many stones does Layla have now?

TEACHER DO: Use **Calling Sticks** to select students to answer the questions below. Record their answers on the board.

- How many stones did Layla collect? (17)
- How many stones did she give to her sister? (10)

STUDENTS DO: Selected students answer the questions aloud.

TEACHER SAY: Think about the mental math strategies we have been practicing. Raise your hand if you can solve this problem in your mind.



STUDENTS DO: Raise their hands if they can solve the problem in their minds.

TEACHER DO: Select a student to solve the problem and explain the mental math strategy they used. If the student's answer is incorrect, allow them to ask another student for help.

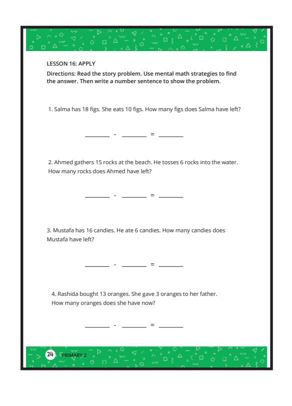
TEACHER SAY: Raise your hand if you used a different mental math strategy to solve the problem.



STUDENTS DO: Raise their hands if they used a different mental math strategy to solve the problem.

TEACHER DO: Select another student to solve the problem and explain the different mental math strategy they used. If the student's answer is incorrect, allow them to ask another student for help.

TEACHER SAY: Our friends used two different strategies, but got the same answer: 17 minus 10 equals 7. Layla has 7 stones left.



LESSON 16: APPLY

Directions: Read the story problem. Use mental math strategies to find the answer. Then write a number sentence to show the problem.

1. Salma has 18 figs. She eats 10 figs. How many figs does Salma have left?

____ - ____ = ____

2. Ahmed gathers 15 rocks at the beach. He tosses 6 rocks into the water. How many rocks does Ahmed have left?

____ - ____ = ____

3. Mustafa has 16 candies. He ate 6 candies. How many candies does Mustafa have left?

____ - ____ = ____

4. Rashida bought 13 oranges. She gave 3 oranges to her father. How many oranges does she have now?

____ - ____ = ____

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2. TEACHER SAY: We are going to solve a few more of these in your student book. Please take out your book and turn to the page Lesson 16: Apply. On this page, you will see some story problems. We will read through each story problem together. You can use any of the mental math strategies on our poster to help you find the sum. Try not to draw pictures or use tally marks. After you solve the problem using mental math, write each number sentence in your student book.

TEACHER DO: For each story problem, read the problem aloud and then allow time for students to work independently to solve the problems. Walk around while students are working to help those who may need it. Then have students share their work and strategies with their **Shoulder Partners** and ask volunteers to share their work with the class. Be sure students explain their thinking and their use of the mental math strategy they selected. Confirm correct answers and encourage students to fix their work if necessary.



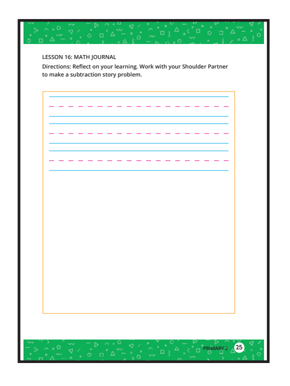
STUDENTS DO: Listen to each story problem read by the teacher. Work independently to solve each problem using any of the mental math strategies. Record the number sentence in the student book. Share work and strategies with **Shoulder Partner**. Selected students share their work with the class. Correct the work in their student books if necessary.

TEACHER SAY: Great work today, class. You all are getting very good at using mental math strategies to find the difference.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: Turn to the page Lesson 16: Math Journal. You and your Shoulder Partner will work together to create your own subtraction story problem. Do not solve the problem. You have about 2 minutes to work. Give me a Thumbs Up when you are finished.**



STUDENTS DO: Create a one-step subtraction problem with their **Shoulder Partner**. Record the problem in the student book. Give a **Thumbs Up** when finished.

TEACHER DO: Monitor students as they are working, assisting as needed. After about 2 minutes, have partners swap books with other partners.



STUDENTS DO: Swap student books with other partners. Work with **Shoulder Partner** to solve their friends' problem.

TEACHER DO: Monitor students as they are working, assisting as needed.

TEACHER SAY: That was fun. Great work today. Give your partner a high five.



STUDENTS DO: High Five their **Shoulder Partner**.

Lesson 17 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Solve addition problems to find a missing addend. • Apply mental math strategies to solve addition problems.	• Addend • Mental math • Strategy • Unknown	• Calendar Math area • Mental Math Strategies poster • Heart and star posters for lesson • Student book and pencil

LESSON PREPARATION

Create and display the heart and star posters described in Chapter Preparation for the Teacher.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.



STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 7 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 7 straws in the Ones pocket. Ten and 7 more is 17, so we have been in school 17 days.

STUDENTS DO: Helper circles 17 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

STUDENTS DO: Count aloud to 17 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of _____. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?



STUDENTS DO: Raise hands to answer questions.

TEACHER SAY: I want us to count by 100s to 1,000 again. But this time, the girls are going to say the first number and then the boys will say the next. We will do this all the way to 1,000. Ready? Go.

STUDENTS DO: Count by 100s to 1,000. Girls start with the first number and then the boys say the next, and so on.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, you will **Model** *how to solve addition problems with an unknown in any position. Students will begin by finding the unknown in the second position.*

1.TEACHER SAY: We have worked a lot on addition and the counting-on strategy. So far, each problem we have solved looks like this: 6 + 8 = ___, where the missing number or unknown number is after the equal sign. Today we are going to try to solve some problems where the unknown is in another part of our math problem. Sometimes the unknown number is one of the addends. Addends are the numbers you add together in an addition problem.

TEACHER DO: Display the poster showing 7 hearts.

TEACHER SAY: I drew 7 hearts on my paper. When I was not looking, someone came along and drew more hearts on my paper.

TEACHER DO: Take down the poster showing 7 hearts and replace it with the poster showing 12 hearts (or cover the 7-heart poster with the 12-heart poster).

TEACHER SAY: **Now there are 12 hearts. I do not know how many hearts were added to this group, but I know that all together, there are now 12 hearts. I started with 7 hearts. My mysterious friend added some hearts. Now I have 12 hearts. How could I write a number sentence to show this as an addition problem? Think quietly for a moment.**

 **STUDENTS DO:** Think quietly about how they would write a number sentence to match the story problem.

TEACHER SAY: **Turn and Talk to your Shoulder Partner about how you would write the addition problem. See if you agree or disagree.**

 **STUDENTS DO:** Talk to their **Shoulder Partners**.

TEACHER SAY: **Give me a Thumbs Up if you have an idea you would like to share.**

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students share their answers at the board.

TEACHER DO: Confirm or provide the correct answer 7 + _____ = 12. Write the number sentence on the board.

TEACHER SAY: **Yes, I started with 7 hearts (point to 7). Someone came along and added some hearts, but I do not know how many (point to the blank). I ended up with 12 hearts in all (point to 12). How would you figure out what number should go in the blank? Think quietly for a moment.**

 **STUDENTS DO:** Think quietly about how they would figure out the missing addend.

TEACHER SAY: **Turn and Talk to your Shoulder Partner about how you would figure out the missing number. See if you agree or disagree.**

 **STUDENTS DO:** Talk to their **Shoulder Partners**.

TEACHER SAY: **Give me a Thumbs Up if you have an idea you would like to share.**

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students share their strategies.

TEACHER DO: Listen to students' answers. Confirm all strategies that would give students the correct missing number. If any students describe the counting-on strategy, focus instruction on that. If no students describe the counting-on strategy, introduce the idea to students. Adjust the following section as needed.

TEACHER SAY: **We know we have 7 hearts, and we have to count up to 12, because 12 is the sum of 7 and our unknown number. One way to solve the problem and figure out the missing number is to count on from 7 to 12. As I count on, I will hold up fingers. Count with me.**

TEACHER DO: Count on from 7 to 12, holding up one finger for each number. You should be holding up 5 fingers when you reach 12.

 **STUDENTS DO:** Count aloud with the teacher.

TEACHER SAY: **We counted 5. Let's check our work. Does 7 + 5 = 12?**

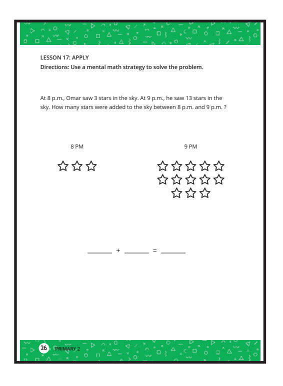
 **STUDENTS DO:** Check work to see if 7 + 5 = 12.

TEACHER SAY: **Yes. We are correct. So 5 is our missing addend.**

TEACHER DO: Write 5 in the blank in the equation on the board.

TEACHER SAY: **Give yourself a high five if you had figured that out.**

STUDENTS DO: Give themselves a high five.



2. **TEACHER SAY: That was tough. Great thinking. Let's try another one in your student book. Turn to the page Lesson 17: Apply. On this page, you will see some stars. At 8 p.m., Omar saw 3 stars in the sky. At 9 p.m., he saw 13 stars in the sky. How many stars were added to the sky between 8 p.m. and 9 p.m.?**

TEACHER DO: Repeat the problem if necessary.

TEACHER SAY: Give me a Thumbs Up if you know what the addition sentence would look like for this problem.



STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected students share their answers.

TEACHER DO: Write 3 + _____ = 13 on the board. Direct students to copy the problem into their student books.



STUDENTS DO: Write the equation in their student books.

TEACHER SAY: Work with your Shoulder Partner to figure out the missing number in the equation. Use one of the mental math strategies you have been practicing.



STUDENTS DO: Work with **Shoulder Partners** to solve the problem in their student books.

TEACHER DO: Walk around the room and observe students as they work. Listen to their conversations and note which students are using strategies that will not work. After about 2 minutes (or when most students are finished), use an **Attention Getting Signal**.

TEACHER SAY: Who used the counting-on strategy to find the missing addend?



STUDENTS DO: Raise hands if they counted on to solve the problem.

TEACHER DO: Select students to demonstrate how they solved the problem and explain their thinking.



STUDENTS DO: Selected students demonstrate and explain how they used a mental math strategy to solve the problem. Seated students observe and ask questions.

TEACHER DO: Ask for students who used a different strategy and have them **Model** their solutions.



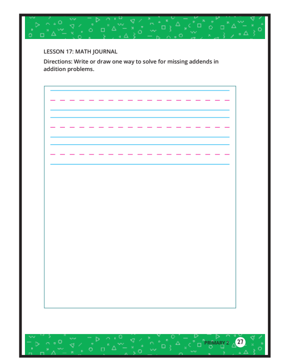
STUDENTS DO: Selected students demonstrate and explain how they used a mental math strategy to solve the problem. Seated students observe and ask questions.

TEACHER SAY: I am so excited about all of the wonderful math thinking I heard today. We will practice solving more problems tomorrow.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: Open your student book to the page Lesson 17: Math Journal. Write about or draw one way we can solve for missing addends in addition problems.**



STUDENTS DO: Write about or draw what they learned today.

Lesson 18 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Solve subtraction problems to find a missing subtrahend. • Apply mental math strategies to solve subtraction problems.	• Mental math • Strategy • Subtrahend • Unknown	• Calendar Math area • Mental Math Strategies poster • Smiley face and candy posters for lesson • Student book and pencil

LESSON PREPARATION

Create and display the smiley face and candy posters described in Chapter Preparation for the Teacher.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

 **STUDENTS DO:** Say together: Tomorrow will be (tomorrow's day of the week).

3.TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

 **STUDENTS DO:** Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

 **STUDENTS DO:** Helper works with the teacher to count the 10 straws in the Tens pocket and the 8 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 8 straws in the Ones pocket. Ten and 8 more is 18, so we have been in school 18 days.

 **STUDENTS DO:** Helper circles 18 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.

 **STUDENTS DO:** Count aloud to 18 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of _____. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?

 **STUDENTS DO:** Raise hands to answer questions.

TEACHER SAY: I want us to count by 5s to 100. But this time, I want us to play Stand Up, Sit Down. We will stand up on 5, sit down on 10, stand up on 15, and so on. Ready?

 **STUDENTS DO:** Count by 5s while playing Stand Up, Sit Down.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, you will **Model** *how to solve subtraction problems with an unknown in the second position.*

1.TEACHER DO: Write 15 – 6 = _____ on the board.

TEACHER SAY: We have worked a lot on subtraction. But so far, each problem we have had looks like the problem on the board, where the missing or unknown number is after the equal sign. Yesterday we solved addition problems where the missing number was before the equal sign. Today we are going to solve subtraction problems where the missing number is before the equal sign.

TEACHER DO: Display poster showing 15 smiley faces.

TEACHER SAY: Help me count the smiley faces.

 **STUDENTS DO:** Count the smiley faces aloud as the teacher points.

TEACHER SAY: **Thank you. I have 15 smiley faces. Someone came along and took away some of my smiley faces.**

TEACHER DO: Take down the poster showing 15 smiley faces and replace it with the poster showing 9 smiley faces (or cover up the first poster with the second poster).

TEACHER SAY: **Help me count again, please.**

 STUDENTS DO: Count the smiley faces aloud as the teacher points.

TEACHER SAY: **Now I only have 9 smiley faces. I do not know how many smiley faces were taken away from this group, but I know that I started with 15 and now I have 9. How could I write a number sentence to show this as a subtraction problem? Think quietly for a moment.**

 STUDENTS DO: Think quietly about how they would write the subtraction problem.

TEACHER SAY: **Turn and Talk to your Shoulder Partner about how you would write the subtraction problem. See if you agree or disagree.**

 STUDENTS DO: Talk to their **Shoulder Partners**.

TEACHER SAY: **Give me a Thumbs Up if you have an idea you would like to share.**

 STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected students share their answers at the board.

TEACHER DO: Confirm or provide the correct answer 15 – _____ = 9. Write the number sentence on the board.

TEACHER SAY: **Yes, I started with 15 smiley faces (point to 15). Someone came along and took some smiley faces, but I do not know how many (point to the blank). I ended up with 9 smiley faces in all (point to 9). How would you figure out what number should go in the blank? Think quietly for a moment.**

 STUDENTS DO: Think quietly about how they would figure out the missing number.

TEACHER SAY: **Turn and Talk to your Shoulder Partner about how you would figure out the missing number. See if you agree or disagree.**

 STUDENTS DO: Talk to their **Shoulder Partners**.

TEACHER SAY: **Give me a Thumbs Up if you have an idea you would like to share.**

 STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected students share their strategies.

TEACHER DO: Listen to students' answers. Confirm all strategies that would give students the correct missing number. If any students describe the Counting On strategy, focus instruction on that. If no students describe the Counting On strategy, introduce the idea to students. Adjust the following section as needed.

TEACHER SAY: **We know we have 15 smiley faces, and we have to count on from 9. That will tell us how many smiley faces were subtracted from 15 to give us 9. As I count on, I will hold up fingers. Count with me.**

TEACHER DO: Count on from 9 to 15, holding up one finger for each number. You should be holding up 6 fingers when you reach 15.

 STUDENTS DO: Count aloud with the teacher.

TEACHER SAY: **We counted 6. Let's check our work. Does 15 – 6 = 9?**

 STUDENTS DO: Check work to see if 15 – 6 = 9.

TEACHER SAY: Yes. We are correct. So 6 is our unknown.

TEACHER DO: Write 6 in the blank in the equation on the board.

TEACHER SAY: Give yourself a pat on the back if you had figured that out.

 **STUDENTS DO:** Give themselves a pat on the back.

2. TEACHER SAY: That was tough, but you did it. Let's try another one in your student book. Turn to the page Lesson 18: Apply.

 **STUDENTS DO:** Turn to Lesson 18 in their student book.

TEACHER SAY: On this page you will see some candies. Before lunch, Aya had 20 candies. After lunch, Aya had 11 candies left. How many candies did Aya eat at lunch?

TEACHER DO: Repeat the problem if necessary.

TEACHER SAY: Give me a Thumbs Up if you know what the subtraction sentence would look like for this problem.

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students share their answers.

TEACHER DO: Confirm or provide the correct answer. Write 20 – ______ = 11 on the board. Direct students to copy the problem into their student books.

 **STUDENTS DO:** Write the equation in their student books.

TEACHER SAY: Work with your Shoulder Partner to figure out the missing number in the equation. Use the Counting On strategy. You have about 2 minutes.

 **STUDENTS DO:** Work with **Shoulder Partners** to solve the problem in their student books.

TEACHER DO: Walk around the room and observe students as they work. Listen to their conversations and note which students are using strategies that will not work. After about 2 minutes (or when most students are finished), use an **Attention Getting Signal**. Select students to demonstrate how they solved the problem and explain their thinking.

 **STUDENTS DO:** Selected students demonstrate and explain how they used the Counting On strategy to solve the problem. Seated students observe and ask questions.

TEACHER DO: Ask for students who used a different strategy and have them **Model** their solutions.

 **STUDENTS DO:** Selected students demonstrate and explain how they used a mental math strategy to solve the problem. Seated students observe and ask questions

TEACHER SAY: You are amazing thinkers. I enjoy hearing you talk about your strategies and seeing you help each other learn.



Reflect (5 minutes)

Directions

1. TEACHER SAY: For Reflect time today, Turn and Talk to your Shoulder Partner. Tell them which was more difficult for you—adding with an unknown before the equal sign or subtracting with an unknown before the equal sign. Talk about why you think so.

 **STUDENTS DO: Turn and Talk** to their **Shoulder Partners** about what they learned today.

TEACHER SAY: We will keep practicing these types of problems so we can become experts.

Lesson 19 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Solve problems to find a missing addend or subtrahend. • Apply mental math strategies to solve addition and subtraction problems.	• Mental math • Strategy • Unknown	• Calendar Math area • Mental Math Strategies poster • Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

1. **TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.



STUDENTS DO: Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

STUDENTS DO: Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

STUDENTS DO: Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

STUDENTS DO: Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

STUDENTS DO: Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

STUDENTS DO: Say the date aloud with the teacher.

2. **TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

STUDENTS DO: Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3. **TEACHER SAY: Let's count to see how many days we have been in school.**

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.



STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 9 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 9 straws in the Ones pocket. Ten and 9 more is 19, so we have been in school 19 days.



STUDENTS DO: Helper circles 19 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 19 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Soon you will take turns leading Calendar Math on your own. Let's see how much you are learning. I will ask some questions about our calendar. When you know the answer, raise your hand.

4.TEACHER DO: Ask students 2 or 3 questions about the calendar to increase automaticity in reading and understanding the calendar. Questions may include:

- Today is ____. What will tomorrow be?
- We are in the month of _____. What was last month?
- What was yesterday?
- How many days are in this month?
- Which day/month comes after ____?

STUDENTS DO: Raise hands to answer questions.

TEACHER SAY: Let's count by 10s to 100 by playing Stand Up, Sit Down. We will stand up on 10, sit down on 20, stand up on 30, and so on. Ready?



STUDENTS DO: Count by 10s while playing Stand Up, Sit Down.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, students will continue to practice solving addition and subtraction problems with an unknown in the second position.

1.TEACHER SAY: Today we are going to continue to practice solving addition and subtraction problems. Missing numbers can be at the beginning of the problem, in the middle, or at the end after the equal sign. We have been solving problems with missing numbers in the second position and after the equal sign. Let's do a practice problem together.

TEACHER DO: Write 7 + _____ = 15 on the board.

TEACHER SAY: Looking at this problem, I see an unknown in the second spot.

TEACHER DO: Point to the unknown.

TEACHER SAY: Give me a Thumbs Up if you know how to use a mental math strategy to solve this problem.



STUDENTS DO: Give a **Thumbs Up** if they know how to solve the problem. Selected

students share their thinking.

TEACHER DO: Listen carefully to students' ideas. If students mention counting on, build instruction on their ideas. If no students mention it, focus instruction on the Counting On strategy. Adjust the following section as needed.

TEACHER SAY: We know we have to figure out how many we have to add to 7 to get to 15. For this problem, we can start at 7 and count on to 15. Count on with me.

 **STUDENTS DO:** Count aloud from 7 to 15 with the teacher.

TEACHER SAY: What do we add to 7 to get 15?

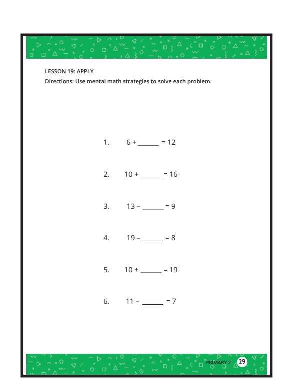
 **STUDENTS DO:** Call out together: 8.

TEACHER SAY: That is right. Our unknown is 8. We can write our number in the blank and check our work now. Solve to see if 7 plus 8 equals 15.

 **STUDENTS DO:** Check to see if 8 is the correct answer.

2. TEACHER SAY: Great job. Now it is your turn to try some. First, we need to find a partner. Let's do Hands Up, Pair Up to find a partner other than your Shoulder Partner. Bring your student book and pencil with you.

 **STUDENTS DO:** Find a partner by doing **Hands Up, Pair Up**.


LESSON 19: APPLY
Directions: Use mental math strategies to solve each problem.

1. 6 + ___ = 12
2. 10 + ___ = 16
3. 13 − ___ = 9
4. 19 − ___ = 8
5. 10 + ___ = 19
6. 11 − ___ = 7

29

TEACHER SAY: Turn to Lesson 19: Apply. You will see several different addition and subtraction problems with unknowns in the second position. You will work with your partner to find the unknown using any mental math strategy you like. Solve as many as you can in 10 minutes.

 **STUDENTS DO:** Work with partners to solve the problems.

TEACHER DO: Walk around the room helping students as necessary, taking note of students who are having trouble.

Note to the Teacher: If students finish early, ask them to offer their help to students you have noticed are struggling.

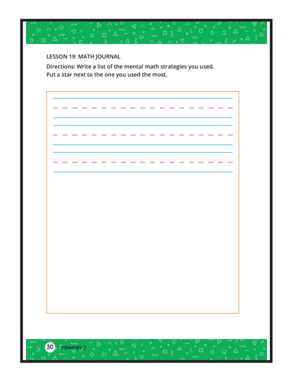
TEACHER DO: After about 10 minutes, use an **Attention Getting Signal**. Go over as many problems as possible, having students demonstrate and explain their work. Encourage students to correct errors in their student books.

TEACHER SAY: Thank you for working so hard on these problems. I appreciate that some of you asked for help when you needed it. I appreciate that you helped each other. This is how we learn.



Reflect (5 minutes)

Directions


LESSON 19: MATH JOURNAL
Directions: Write a list of the mental math strategies you used. Put a star next to the one you used the most.

30

1. TEACHER SAY: For Reflect time today, you will go back to your seat and write in your student book. Turn to the page Lesson 19: Math Journal. Make a list of all the mental math strategies you used. Then put a star next to the one you used the most.

 **STUDENTS DO:** Create a list of the mental math strategies they used in their student book. Put a star next to the one they used the most.

TEACHER SAY: Great work today, class. Give yourself a high five.

STUDENTS DO: Give themselves a high five.

Lesson 20 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Apply mental math strategies to add 1- and 2-digit numbers.	• Review vocabulary from Lessons 11 to 20 as needed	• Calendar Math area • Mental Math Strategies poster • Dice (one die per small group of students) • Student book and pencil

PREPARATION
Obtain dice showing numbers 1 to 6 (one die per small group of students.)



Calendar Math (15 minutes)

Directions

Note to the Teacher: If Math is not taught every day of the school week, adjust the numbers in the Calendar Math conversation to count actual school days instead of the number of Math lessons.

Note to the Teacher: Starting with Lesson 21, students will lead Calendar Math (with your support, as needed). This section of the lesson will be abbreviated, since students should be very familiar with the Calendar Math routine by now. If necessary, refer back to this lesson for directions.

1.**TEACHER DO:** Use **Calling Sticks** to select a student to help you lead Calendar Math today.

 **STUDENTS DO:** Helper points to and says the name of the current month.

TEACHER SAY: Let's say the names of all of the months together.

 **STUDENTS DO:** Say the months aloud with the teacher.

TEACHER DO: Have student helper identify the current day.

 **STUDENTS DO:** Helper points to and says the name of the current day.

TEACHER SAY: Let's say all of the days of the week together. Say them with me as I point.

 **STUDENTS DO:** Say the days of the week aloud with the teacher.

TEACHER DO: Have student helper identify the date.

 **STUDENTS DO:** Helper says the date aloud: Today is (day) the (date) of (month) (year).

TEACHER SAY: Yes, today is (day) the (date) of (month) (year). Now everyone say today's date.

 **STUDENTS DO:** Say the date aloud with the teacher.

2.**TEACHER SAY: What day was yesterday? To find out what day yesterday was, we look at today on the calendar and go back one day. Yesterday was (yesterday's day of the week). You say it.**

 **STUDENTS DO:** Say together: Yesterday was (yesterday's day of the week).

TEACHER DO: Repeat the procedure for tomorrow's day.

STUDENTS DO: Say together: Tomorrow will be (tomorrow's day of the week).

3. TEACHER SAY: Let's count to see how many days we have been in school.

TEACHER DO: Have student helper place 1 counting straw in the Ones pocket.

STUDENTS DO: Helper places 1 counting straw in the Ones pocket.

TEACHER SAY: How many straws are in the Ones pocket now? How many are in the Tens pocket? Let's have ______ (student's name) help me count.

STUDENTS DO: Helper works with the teacher to count the 10 straws in the Tens pocket and the 10 straws in the Ones pocket.

TEACHER SAY: Thank you, ______ (student's name). There is 1 bundle of 10 in the Tens pocket, so that's 10 straws. There are 10 straws in the Ones pocket. Who remembers the rule about how many straws or bundles we can have in each pocket?



STUDENTS DO: Raise hands to volunteer. Selected students share their thinking.

TEACHER SAY: Yes, we can have only 9 straws or 9 bundles in each pocket. What should we do?



STUDENTS DO: Raise hands to volunteer. Selected students explain how to regroup the 10 Ones into 1 Ten and move the bundle to the Tens pocket.

TEACHER SAY: Now we can count how many days we have been in school. How many straws are in each bundle?



STUDENTS DO: Call out together: 10.

TEACHER SAY: Yes, so we can count the straws quickly by skip counting. Count aloud with me.

TEACHER DO: Hold up the first bundle and say 10. Hold up the second bundle and say 20.



STUDENTS DO: Count aloud with the teacher.

TEACHER SAY: We have been in school 20 days.



STUDENTS DO: Helper circles 20 on the 120 chart.

TEACHER SAY: Let's count all of the circled numbers together.



STUDENTS DO: Count aloud to 20 with the teacher. Helper sits.

TEACHER SAY: Great work. Thank you for helping me with Calendar Math. Starting with our next lesson, you will lead Calendar Math. I will help you if you need help. I look forward to each of you acting as the teacher.



Learn (40 minutes)

Directions

Note to the Teacher: For the Learn section today, students will play a math game to reinforce their mental math knowledge. You will need one die for each small group of students.

1.TEACHER SAY: **To celebrate all of the wonderful work you have done this week, we are going to play 101 and Over. To play the game, we will get into groups of (3 or 4). Each group will use one die and a 120 Chart. Each die has the numbers 1 through 6 on it. Each player in the group will take a turn rolling the die.**

TEACHER DO: Roll one die to demonstrate.

TEACHER SAY: I rolled a _____ (number rolled). It is the first number, so I am going to circle it on the 120 Chart. Now I am going to pretend I am the second person and roll the die.

TEACHER DO: Roll one die again.

TEACHER SAY: I rolled a _____ (number rolled). I am going to start at the circled number and make that many jumps on my 120 Chart.

TEACHER DO: Model jumping _____ (second number rolled) times on the 120 Chart. Circle the new number.

TEACHER SAY: I can write an addition problem to show how I added the first number I rolled to the second number I rolled.

TEACHER DO: Model writing an addition problem on the board, starting with the first number you rolled, adding the second number you rolled, and equaling the new circled number. Repeat the process 2 more times to **Model** for the students.

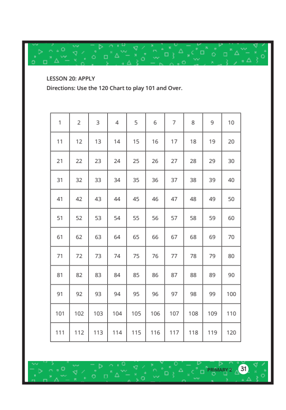
 **STUDENTS DO:** Observe the teacher. Ask questions as needed.

TEACHER SAY: The game is over when your team reaches 101 or higher. I will put you into groups using Calling Sticks. When I call your name, move to a new spot in the room with your group and sit in a circle. Bring your student book and a pencil with you.

TEACHER DO: Divide students into groups using **Calling Sticks**. Call out 3 or 4 names at a time and have them move to a new place in the room.

 **STUDENTS DO:** When called, take their student book and pencil and move with their group to a new spot and sit in a circle.

TEACHER DO: Hand out dice to each small group of students.



LESSON 20: APPLY

Directions: Use the 120 Chart to play 101 and Over.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

PRIMARY 2 31

2.TEACHER SAY: **It is your turn to play. One student in each group should open their student book to the page Lesson 20: Apply. There is a 120 Chart on that page. You will use it to play the game. It is okay to write in your friend's student book for this game. Raise your hand if you have any questions or get stuck. Ready? Begin.**

 **STUDENTS DO:** Play 101 and Over with groups.

TEACHER DO: Walk around the classroom to help as needed. Give students time to play the game. If time allows, have students play again. This time, have them work in a different student's student book.

TEACHER SAY: We are going to play the game one more time. This time use another student book in your group. Ready? You may begin.

 **STUDENTS DO:** Play 101 and Over again with groups.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: For Reflect time today, I want you to Turn and Talk with your partners in your group. How was playing the game like the addition we have been practicing this week?**

 **STUDENTS DO: Turn and Talk** with their group.

TEACHER SAY: We have also been practicing subtraction. How could we change the game to make subtraction part of it? Turn and Talk with your group.

 **STUDENTS DO: Turn and Talk** with their group. Selected groups share their ideas for incorporating subtraction in game play.

TEACHER SAY: That was a fun day in math. Thank you for working so hard on addition and subtraction this week.

PRIMARY 2

Mathematics

WHO AM I?

Chapter 3

Lessons 21 to 30

Chapter Overview

Who Am I?

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 21 to 30, students will work toward the following learning indicators:

C. NUMBERS AND OPERATIONS IN BASE TEN:

1.a. Understand that the three digits of a three-digit number represent values of hundreds, tens, and ones.
1.b. Determine the place value and the value of digits in numbers.
1.c. Count by 5s, 10s, and 100s within 1,000.
1.f. Read and write numbers to 1,000 using numbers and expanded form.
1.g. Read and write numbers 1 to 9 and multiples of 10 through 100 in word form (alone, without sentences/context).
1.h. For numbers 11 to 19 and non-multiples of 10 through 99, identify the number from the word form (written by the teacher; alone, without sentences/context).
1.i. Use place value to compare two numbers up to 1,000.
1.j. Use the symbols >, =, and < to express comparisons.
1.k. Order a set of up to 5 numbers with values up to 1,000 from least to greatest or greatest to least.
2.a. Apply a variety of problem solving strategies based on concrete models or drawings, place value concepts, properties of operations, and/or the relationship between addition and subtraction and relate the strategy to a written method.

CH 3

Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
21	**Students will:** • Participate in Calendar Math activities. • Read and write 3-digit numbers. • Represent 3-digit numbers using concrete models. • Identify the place and value of each digit in a 3-digit number.
22	**Students will:** • Participate in Calendar Math activities. • Read and write 3-digit numbers. • Represent 3-digit numbers using concrete models. • Identify the place and value of each digit in a 3-digit number.
23	**Students will:** • Participate in Calendar Math activities. • Identify the place and value of each digit in a 3-digit number. • Read and write 3-digit numbers in standard and expanded form.
24	**Students will:** • Participate in Calendar Math activities. • Read and write 3-digit numbers in standard and expanded form. • Read and write numbers 1 to 9 and multiples of 10 through 90 in word form.
25	**Students will:** • Participate in Calendar Math activities. • Convert numbers in expanded form to standard form. • Read and write numbers 1 to 9 in word form. • Match the word form of numbers 11 to 19 to their standard form.
26	**Students will:** • Participate in Calendar Math activities. • Read and write 3-digit numbers in standard and expanded form.
27	**Students will:** • Participate in Calendar Math activities. • Use place value to compare two 3-digit numbers. • Use the symbols >, =, and < to express comparisons.
28	**Students will:** • Participate in Calendar Math activities. • Use place value to compare two 2-digit and 3-digit numbers. • Use the symbols >, =, and < to express comparisons.
29	**Students will:** • Participate in Calendar Math activities. • Order a set of 5 numbers from least to greatest or greatest to least.
30	**Students will:** • Participate in Calendar Math activities. • Compare and order numbers in expanded, word, and standard forms.

Note to the Teacher: Many of the mental math strategies in this chapter are review from Primary 1. In Primary 1, students worked on counting on, making ten, decomposing a number leading to a ten, using the relationship between addition and subtraction, and creating equivalent but easier or known sums. Base your pacing of lessons in this chapter on how well students recall and apply this information from last year.

Chapter Preparation for the Teacher

- For Lesson 21:
  - Create two sets of number cards (1 to 9). Cards should measure at least 20 cm x 20 cm.
  - Create a Hundreds, Tens, Ones chart to display on the board.

H Hundreds	T Tens	O Ones

- For Lesson 22:
  - If necessary, create a new Hundreds, Tens, Ones chart to display on the board.
  - Gather one die (or create paper dice) for each small group of three students.

- For Lesson 23:
  - Create number cards with 1, 2, 3, 4, 5, 6, 7, 8, 9 on the front and 0 on the back. Cards should measure at least 20 cm x 20 cm.
  - Print or create a set of Find Your Partner game cards.
    - * Each student will need a game card.
    - * The Find Your Partner Game Cards Blackline Master has enough cards for 32 students. The Blackline Master also includes blank cards in case you need to make additional cards.

- For Lesson 24:
  - Create a blank Standard Form/Word Form chart as shown below.

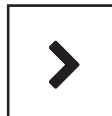
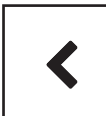
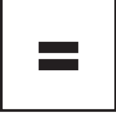
Standard Form	Word Form

    * The completed chart—filled in during the lesson—will look like this:

Standard Form	Word Form
1	one
2	two
3	three
4	four
5	five
6	six
7	seven
8	eight
9	nine
10	ten
20	twenty
30	thirty
40	forty
50	fifty
60	sixty
70	seventy
80	eighty
90	ninety

- For Lesson 26:
  - Print out "I Have... Who Has...?" game cards for the class. (See the I Have… Who Has? Game Cards Blackline Master.)
    * Each student will need a game card.
    * The Blackline Master contains enough cards for a class of up to 30 students. If you have more than 30 students in your class, print out multiple copies of the game cards and divide students into large groups. The Blackline Master also includes blank cards so you can create additional cards if needed.
    * Each group can play the game on their own after you have demonstrated how to play.
    * It is not necessary for the game to begin and end with the same person.
    * The card the teacher uses as the first game card in the lesson is the first card in the Blackline Master.

- For Lesson 27:
  - Create signs showing the >, <, and = signs. These signs can be made or printed on regular paper and should measure at least 20 cm x 20 cm.

  - Print sets of Number Comparison cards.
    * You need one set of cards for each pair of students.
    * See the 3-digit Number Comparison Cards Blackline Master, which shows two sets of cards on one page.
  - Students will need a way to create the greater than/less than symbols. Suggestions include popsicle sticks, straws cut in half, chenille stems (pipe cleaners), crayons, or large paper clips. You will need two pieces for each pair of students.
    * To help you manage materials, consider creating a set of materials for each pair of students and storing them in paper bags.

- For Lesson 28:
  - Print sets of 2-digit Number Comparison cards.
    * You need one set of cards for each pair of students.
    * See the 2-digit Number Comparison Cards Blackline Master, which shows three sets of cards on one page.

* Add the cards to the card sets students used in Lesson 27.
* Students will not need materials to create the greater than/less than symbols.

- For Lesson 30:
  * Create the four number cards below (at least 20 cm x 25 cm).

two hundred thirty-six	**300 + 50 + 1**	**141**	**seventy-six**

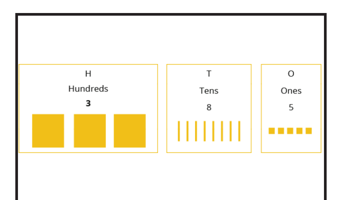
  * Prepare small pieces of blank paper or index cards so that each student can have 5 to 10 pieces. (In a smaller class, students can have more cards; a larger class can have fewer.)

Materials Used

Calendar Math area



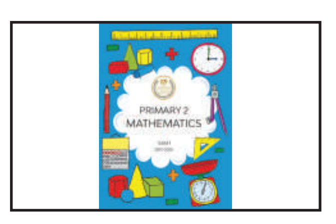
Hundreds, tens, ones chart



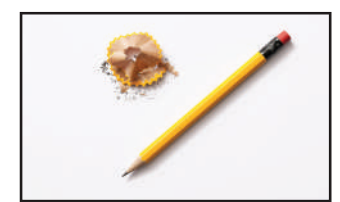
Blank note cards



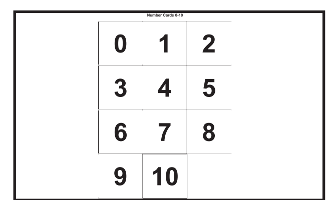
Student book



Pencil



Two sets of numbered cards (1-9)

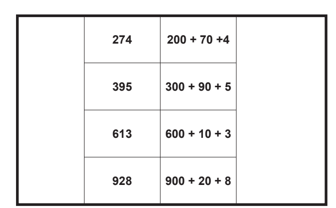


0	1	2
3	4	5
6	7	8
9	10	

Dice

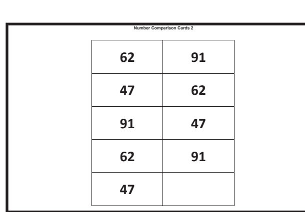


Find your partner game cards



274	200 + 70 +4
395	300 + 90 + 5
613	600 + 10 + 3
928	900 + 20 + 8

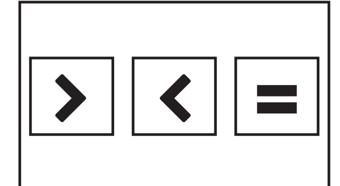
Number comparison cards



62	91
47	62
91	47
62	91
47	

I have... Who has..? Game cards

Cards of less than, greater than, equal too signs



Popsicle sticks



Standard form/word form chart

Base Ten manipulatives (paper or Base Ten blocks)

Lesson 21 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Read and write 3-digit numbers. • Represent 3-digit numbers using concrete models. • Identify the place and value of each digit in a 3-digit number.	• Digit • Hundreds • Ones • Place value • Tens • Value	• Calendar Math area • Base Ten manipulatives (paper or Base Ten blocks) • Hundreds, Tens, Ones chart • Two sets of Number cards 1 to 9 • Student book and pencil

LESSON PREPARATION

Create two sets of number cards (1 to 9).

Print sets of paper Base Ten manipulatives. See Chapter Preparation for the Teacher for detailed instructions.

Create a Hundreds, Tens, Ones chart to display on the board.



Calendar Math (15 minutes)

Directions

Note to the Teacher: In this lesson, students take over the Calendar Math segment, leading their classmates in each activity. Offer support and assistance as needed. This section of the Teacher Guide will be abbreviated. For specific procedures, refer to Lesson 20.

1.**TEACHER SAY: Starting today, you will be the teacher for Calendar Math. I will still be here to help you if you need help. Each day, I will pull a Calling Stick to select a student. Once you have all had a chance, I will start over.**

TEACHER DO: Use **Calling Sticks** to select one student.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

TEACHER DO: Guide student helper through the procedure, including the following:

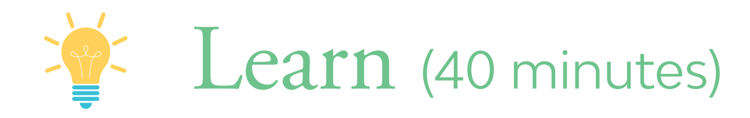
- Current month
- All months of the year
- Current day
- All days of the week
- Today's date: Today is (day of week) the (date) of (month) (year).
- Yesterday and tomorrow
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

2.**TEACHER DO:** If time allows, have student helper ask the class questions about the calendar.

 **STUDENTS DO:** Helper asks questions. All students participate in answering the questions.

3.**TEACHER DO:** Have the student helper lead the class in skip counting by 2s, 5s, 10s, or 100s.

 **STUDENTS DO:** Helper leads the class in skip counting. All students count aloud with the helper.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students learn about place value to the Hundreds place and determine the place value of each digit in 3-digit numbers.

1.**TEACHER DO:** Write or display a place value chart with Tens and Ones. (You can use your Hundreds-Tens-Ones chart and cover up the Hundreds place.) Point to the 120 Chart.

TEACHER SAY: Last year, you learned about 2-digit numbers. If you remember, a 2-digit number has 1 digit in the Tens place and 1 digit in the Ones place. Raise your hand if you can find the greatest 2-digit number on our 120 Chart.

 **STUDENTS DO:** Look at the 120 Chart. Raise hand to volunteer. Selected students share their answers.

TEACHER DO: Confirm the correct answer. Use the number cards to show 99 on the Tens-Ones chart on the board.

TEACHER SAY: Well done. This number is 99. The first 9 in the number 99 tells us there are 9 sets of Ten in 99.

TEACHER DO: Draw a line under the first 9. Tape 9 Ten strips (Base Ten manipulatives) to the board.

TEACHER SAY: The second 9 tells us there are 9 Ones.

TEACHER DO: Circle the 9 in the Ones place. Tape 9 Ones squares to the board.

TEACHER SAY: Together, we have 9 Tens and 9 Ones. That is the greatest 2-digit number. What happens when we count higher than 99? Think for a moment and then turn to your Shoulder Partner to share your thinking. Give me a Thumbs Up when you are ready to share your thinking with the group.

 **STUDENTS DO:** Share ideas with a **Shoulder Partner**. Give a **Thumbs Up** when they are ready. Selected students share ideas with the class.

TEACHER SAY: We know that we can only have up to 9 digits in each place. We can only have up to 9 Ones in the Ones place and up to 9 Tens in the Tens place. So what happens when we add 1 to 99?

TEACHER DO: Hold up 1 Ones square and add it to the 9 Ones squares on the board.

TEACHER SAY: Can we have 10 Ones in the Ones place?

 **STUDENTS DO:** Respond together: no.

TEACHER SAY: What do we do in Calendar Math when we get too many Ones in the Ones place? Wave at me if you know.

 **STUDENTS DO:** Wave if they know the answer. Selected students share.

TEACHER SAY: Yes, we bundle 10 straws together and move them to the Tens place. I will do that now at the board.

TEACHER DO: Model putting 10 of the Ones squares together to form a Ten strip (or replace them with a Ten strip). Move the Ten to the Tens place.

TEACHER SAY: Great. But now we have 10 Tens in the Tens place. Can we have 10 Tens in the Tens place?

 **STUDENTS DO:** Respond together: no.

TEACHER SAY: I am going to put 10 Tens together and move them to the next place, just as I did with the 10 Ones.

TEACHER DO: Model putting 10 of the Tens strips together to form a Hundreds block (or replace them with a Hundreds block). Move them to the next place (which is currently not labeled).

TEACHER SAY: Great, now we have put 10 Tens together to create a block of 100. I moved it to the next place. Oh no, this place does not have a name yet. What do you think it should be called? Give me a Thumbs Up if you have an idea.

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students share ideas.

TEACHER DO: Confirm correct answers. If no students suggest calling the place Hundreds, explain that the next place is called Hundreds. Write Hundreds on the board above the Hundreds block.

TEACHER SAY: The place value chart helps us understand how to read this number. There are no Ones, no Tens, and 1 Hundred. This number is 100. You say 100.

 **STUDENTS DO:** Say together: 100.

TEACHER DO: Reveal the Hundreds column on the Hundreds-Tens-Ones place value chart on the board. Use number cards to display the number 100 on the chart.

TEACHER SAY: This year, we are going to learn how to find place value in 3-digit numbers. We are going to use a Hundreds, Tens, Ones chart—or HTO chart—and Base Ten manipulatives to help us. Place value helps us understand numbers. Place value means that a digit has a specific VALUE depending on its PLACE in a number.

TEACHER DO: Hand out student sets of Base Ten manipulatives. Then, write 200, 20, and 2 on the board.

TEACHER SAY: Let's look at more numbers. In the number 20, the place value of the 2 is 2 Tens, or 20. If the 2 were in the Ones place, its place value would be 2 Ones, or 2. If the 2 were in the Hundreds place, its place value would be 2 Hundreds, or 200. It is the same digit—2—but its value changes depending on its place in the number. Let's all practice. Show 2 using your Base Ten manipulatives.

 **STUDENTS DO:** Show 2 Ones squares.

TEACHER DO: Observe students as they work. Take note of students who are looking at their classmates' work for support. (Be sure to observe each time students create a number in this lesson.) Show the correct answer at the board using your manipulatives.

TEACHER SAY: Great work. Now show 20 using your Base Ten manipulatives.

 **STUDENTS DO:** Show 2 Tens strips.

TEACHER DO: Show correct answer at the board using your manipulatives.

TEACHER SAY: Wonderful. Now show 200.

 **STUDENTS DO:** Show 2 Hundreds blocks.

TEACHER DO: Show correct answer at the board using your manipulatives.

TEACHER SAY: We can see that the value of the 2 changes depending on its place in the number. If the 2 is in the Ones place, its value is 2. If the 2 is in the Tens place, its value is 20. What is the value of the 2 if it is in the Hundreds place?

 **STUDENTS DO:** Respond together: 200.

TEACHER SAY: **Let's look at another number.**

TEACHER DO: Write 385 on the board (not in the HTO chart).

TEACHER SAY: **Think about how we found the Tens and Ones in the number 99. What do you think the digits 3, 8, and 5 mean in this number? Turn and Talk to your Shoulder Partner and tell them your thoughts. Give me a Thumbs Up when you are ready to share.**

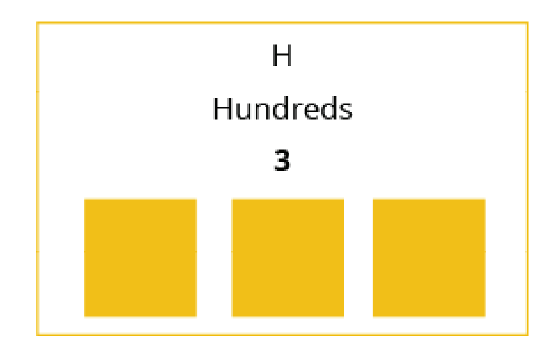
STUDENTS DO: **Turn and Talk** to **Shoulder Partner** and give a **Thumbs Up** when they are ready. Selected students share their thinking with the class.

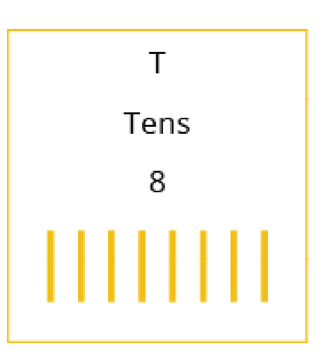
TEACHER SAY: **Let's put the number in the Hundreds, Tens, Ones chart on the board.**

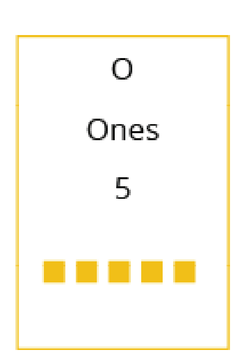
TEACHER DO: Use the number cards to show the number 385 in the HTO chart.

TEACHER SAY: **In this number, we have a 3 in the Hundreds place. This tells us that the number 385 has 3 Hundreds.**

TEACHER DO: Tape 3 Hundreds blocks under the 3. Have students show 3 Hundreds using their manipulatives.







TEACHER SAY: **We are using manipulatives. If I wanted to draw 3 Hundreds, I could draw 3 big squares to represent them.**

TEACHER DO: Tape 8 Tens strips onto the HTO chart. Have students show 8 Tens using their manipulatives.

TEACHER SAY: **If I wanted to draw 8 Tens, I could draw 8 skinny rectangles to represent them.**

TEACHER DO: Tape 5 Ones squares onto the HTO chart. Have students show 5 Ones using their manipulatives.

TEACHER SAY: **If I wanted to draw 5 Ones, I could draw 5 small squares to represent them. The number 385 has 3 Hundreds, 8 Tens, and 5 Ones. When we read this number, we say three hundred eighty-five. Say that with me.**

STUDENTS DO: Say: three hundred eighty-five.

TEACHER SAY: **Raise your hand if you know the place value of the 3 in this number.**



STUDENTS DO: Raise hands to volunteer. Selected students answer the question: 300.

TEACHER SAY: **The 3 is in the Hundreds place, so the place value of the 3 is 300. Raise your hand if you know the place value of the 8 in this number.**



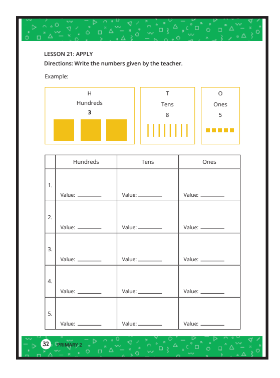
STUDENTS DO: Raise hands to volunteer. Selected students answer the question: 80.

TEACHER SAY: **The 8 is in the Tens place, so the place value of the 8 is 80. Raise your hand if you know the place value of the 5 in this number.**



STUDENTS DO: Raise hands to volunteer. Selected students answer the question: 5.

TEACHER SAY: The 5 is in the Ones place, so the place value of the 5 is 5. Great job.



2. TEACHER SAY: We are going to practice some more, but I need your help. Take out your student book and open it to page Lesson 21: Apply. I will use Calling Sticks to call three of you to the front. Each of you will take one number card. You will use the cards to create a 3-digit number on the Hundreds, Tens, Ones chart. Then, you will show the number using the manipulatives. If you are sitting down, you will write the numbers in your student book and show the numbers using your manipulatives. Are you ready?

 **STUDENTS DO:** Selected students go to the front of the room and take a number card.

TEACHER DO: Based on the three numbers the students chose, select a 3-digit number for the students to create on the chart. For example, if they chose 2, 8, and 1, you could ask them to create 821,182, or 218.

TEACHER SAY: The number you will create is _____. Work together to create that number in the HTO chart using your number cards and manipulatives. Remember, if you are sitting, write the 3-digit number in the Hundreds, Tens, Ones chart in your student book and use your own manipulatives to show the number. You may begin.

 **STUDENTS DO:** Use their knowledge of place value to create the number given by the teacher (at the board or in their student book).

TEACHER SAY: Let's check our work.

TEACHER DO: Walk through the students' answer and point out the Hundreds, Tens, and Ones. Ask students to identify the value of each digit and add the information to the HTO chart in their student books. (Numbers will vary based on the numbers the students chose).

 **STUDENTS DO:** Check their work. Write the value of each digit in their student book. Correct their work if necessary.

3. TEACHER SAY: Great thinking. Let's get more of you up here to help me make our next 3-digit number.

TEACHER DO: Use **Calling Sticks** to select three more students. Repeat this activity two or three more times (as time allows) to give as many students a chance to participate as possible.

STUDENTS DO: Use their knowledge of place value to create the number given by the teacher (at the board or in their student book).



Reflect (5 minutes)

Directions

1. TEACHER SAY: Today we learned how place value helps us read and write numbers. For Reflect, Turn and Talk to your Shoulder Partner and discuss one thing you learned today.

 **STUDENTS DO: Turn and Talk** to their **Shoulder Partner** and share one thing they learned today.

TEACHER DO: Allow students time to share. Walk around the room to check answers and listen to explanations made by students.

TEACHER SAY: We will keep practicing place value tomorrow. I want you to turn to your partner and give them a high five. Great work today, class.

 **STUDENTS DO:** Give their partner a high five.

Lesson 22 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Read and write 3-digit numbers.
- Represent 3-digit numbers using concrete models.
- Identify the place and value of each digit in a 3-digit number.

KEY VOCABULARY

- Digit
- Hundreds
- Ones
- Place value
- Tens
- Value

MATERIALS

- Calendar Math area
- Base Ten manipulatives (paper or Base Ten blocks)
- Hundreds, Tens, Ones chart
- Two sets of Number cards 1 to 9
- Dice
- Student book and pencil

LESSON PREPARATION

If necessary, create a new Hundreds, Tens, Ones chart to display on the board.

Gather one die (or create paper dice) for each set of three students.



Calendar Math (15 minutes)

Directions

1.TEACHER SAY: You have done such a wonderful job with Calendar Math. I am so excited that, from now on, you will be the teacher for Calendar Math. Remember, I am still here to help you if you need help. Each day I will pull a Calling Stick to select a student. Once you have all had a chance, I will start over.

TEACHER DO: Use the **Calling Sticks** to select one student.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

TEACHER DO: Guide student helper through the procedure, including the following:
- Current month
- All months of the year
- Current day
- All days of the week
- Today's date: Today is (day of week) the (date) of (month) (year).
- Yesterday and tomorrow
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

2.TEACHER DO: If time allows, have student helper ask the class questions about the calendar.

 **STUDENTS DO:** Helper asks questions. All students participate in answering the questions.

3.TEACHER DO: Have the student helper lead the class in skip counting by 2s, 5s, 10s, or 100s.

 **STUDENTS DO:** Helper leads the class in skip counting. All students count aloud with the helper.

Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students continue to work on place value to the Hundreds place. Students work in groups to create 3-digit numbers using HTO charts and dice.

1.TEACHER SAY: **The first thing we are going to do is Hands Up, Pair Up to find a partner. When I say go, you will put your hand in the air and walk around the classroom to find a partner who also has their hand in the air. Once you find someone, give them a high five and freeze until everyone has a partner. Ready? Go.**


STUDENTS DO: **Hands Up, Pair Up** to find a partner.

TEACHER SAY: **Tell your partner what you remember from our math lesson yesterday. You may begin.**


STUDENTS DO: Take turns sharing with their partner what they remember from math yesterday.

TEACHER SAY: **Go back to your desk. I will use Calling Sticks to choose three of you to share what you and your partner discussed.**


STUDENTS DO: Selected students share their thinking.

2.TEACHER SAY: **Thank you for sharing. Yesterday, we learned about the place of each digit in a 3-digit number and how the value of the digit depends on its place. We used a Hundreds, Tens, Ones chart to help us organize numbers. Today you are going to practice this by playing a game with some friends. First, let's do one round together so I can show you how to play and what you need to include in your student book.**

TEACHER DO: Display a Hundreds, Tens, Ones chart on the board.

TEACHER SAY: **I have one die. I am going to roll the die three times. My first roll is going to be my Hundreds digit.**

TEACHER DO: Roll the die.

TEACHER SAY: **I rolled a _____, so my number is going to have _____ Hundreds.**

TEACHER DO: Post the number card to match the number you rolled in the Hundreds section of the chart.

TEACHER SAY: **I will use my manipulatives to show _____ Hundreds.**

TEACHER DO: Show Hundreds using manipulatives.

TEACHER SAY: **Now I will roll a second time. This roll is going to be my Tens digit.**

TEACHER DO: Roll the die.

TEACHER SAY: **I rolled a _____, so my number is going to have _____ Tens.**

TEACHER DO: Post the number card to match the number you rolled in the Tens section of the chart.

TEACHER SAY: **I will use my manipulatives to show _____ Tens.**

TEACHER DO: Show Tens using manipulatives.

TEACHER SAY: **Now I will roll a third time. This roll is going to be my Ones digit.**

TEACHER DO: Roll the die.

TEACHER SAY: I rolled a _____, so my number is going to have _____ Ones.

TEACHER DO: Post the number card to match the number you rolled in the Ones section of the chart.

TEACHER SAY: I will use my manipulatives to show _____ Ones.

TEACHER DO: Show Ones using manipulatives.

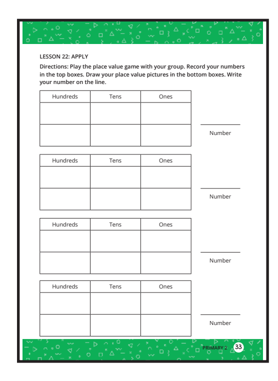
TEACHER SAY: Now our number is complete. Who can read the number? Raise your hand.

 **STUDENTS DO:** Raise hands to volunteer. Selected students identify the 3-digit number.

TEACHER DO: Confirm or correct students' answers.

3. TEACHER SAY: Now it is your turn to play the game. First I will put you into groups. I will point to three students and say 1, 2, 3. Those three students will be in a group together. Each group will get one die and a set of place value manipulatives.

TEACHER DO: Divide students into groups of three.



LESSON 22: APPLY

Directions: Play the place value game with your group. Record your numbers in the top boxes. Draw your place value pictures in the bottom boxes. Write your number on the line.

Hundreds	Tens	Ones

_____ Number

Hundreds	Tens	Ones

_____ Number

Hundreds	Tens	Ones

_____ Number

Hundreds	Tens	Ones

_____ Number

PRIMARY 2 33

TEACHER SAY: Open your student book to page Lesson 22: Apply. Each group will need to find a spot around the room where you can play the game. Take your student book and your pencil with you. I am going to hand out the dice. Each group will get one.

 **STUDENTS DO:** Find a spot to play with their group. Take student books and pencils.

TEACHER DO: After groups are settled, hand out one die and one set of place value manipulatives to each small group.

TEACHER SAY: To play the game, do exactly what I just modeled at the board. On the page for Lesson 22, you will see four different HTO charts. Each group member will get a turn to roll the die. The first number is the Hundreds, the second is the Tens, and the third is the Ones. Write the numbers you rolled in the correct place on the Hundreds, Tens, Ones chart. Then show the number using your place value manipulatives. Finally, write the 3-digit number on the line beside the chart. You will do this four times.

TEACHER DO: If necessary, write the rules on the board.

 **STUDENTS DO:** Play the place value game with their groups as modeled and explained by the teacher.

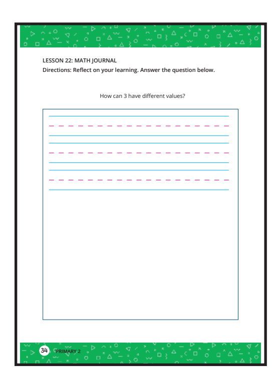
TEACHER DO: Allow students time to complete the activity. Walk around and monitor students during this activity, taking note of students who are struggling and may need further explanation. Encourage group members to help each other to build understanding of place value.

TEACHER SAY: Great work. You may head back to your desk with your student book and pencil. Keep your book out on your desk.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: It is time to reflect on what we did and think about the value of digits when they are in different places. Turn to page Lesson 22: Math Journal in your student book. Work on your own to answer the question: How can 3 have different values? In other words, how can 3 be worth different amounts—not just 3 (hold up 3 fingers)? You will have 3 minutes to write on your own and then you will share your thinking with your Shoulder Partner.**

TEACHER DO: Give students 3 minutes to write independently and then use an **Attention Getting Signal** to indicate time to share with a **Shoulder Partner**.



STUDENTS DO: Write or draw a response to the Reflect question in their student books. At the signal, share their thinking with a **Shoulder Partner**.

TEACHER DO: Listen to students' conversations. Note students who have a strong understanding of place value and those who may need additional instruction and support.

TEACHER SAY: You had such interesting thoughts about today's Reflect question. We will continue to explore place value tomorrow.

Lesson 23 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Identify the place and value of each digit in a 3-digit number. • Read and write 3-digit numbers in standard and expanded form.	• Expanded form • Place value • Standard form • Value	• Calendar Math area • Number cards: 1, 2, 3, 4, 5, 6, 7, 8, 9 on one side and 0 on the other • Find Your Partner game cards

LESSON PREPARATION

Create number cards with 1, 2, 3, 4, 5, 6, 7, 8, 9 on one side and 0 on the back.

Print out Find Your Partner game cards (See the Find Your Partner Game Cards Blackline Master.)

- The Blackline Master includes enough cards for 32 students and a template to create additional cards, if needed.
- To play the game, each student will need a card. If you have an odd number of students, you will have to play the game so each student has a partner.



Calendar Math (15 minutes)

Directions

1. **TEACHER SAY: Let's see who will lead Calendar Math today.**

TEACHER DO: Use the **Calling Sticks** to select one student.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

TEACHER DO: Guide student helper through the procedure, including the following:

- Current month
- All months of the year
- Current day
- All days of the week
- Today's date: Today is (day of week) the (date) of (month) (year).
- Yesterday and tomorrow
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

2. **TEACHER DO:** If time allows, have student helper ask the class questions about the calendar.

 **STUDENTS DO:** Helper asks questions. All students participate in answering the questions.

3. **TEACHER DO:** Have the student helper lead the class in skip counting by 2s, 5s, 10s, or 100s.

 **STUDENTS DO:** Helper leads the class in skip counting. All students count aloud with the helper.

Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students learn to read and write numbers in expanded form. Then students play Find Your Partner to strengthen and apply understanding of place value and expanded form.

1.TEACHER SAY: **There are many ways for us to write numbers. The only way we have talked about so far is the standard form. That is where we just write the digits that make up the whole number. For example: 542.**

TEACHER DO: Write the number 542 on the board.

TEACHER SAY: **Another way we write numbers is called expanded form. Will you say that with me? Expanded form.**

 STUDENTS DO: Say: expanded form.

TEACHER SAY: **Expanded form is when we stretch out a number to show the Hundreds, Tens, and Ones that make the number. In order for us to write a number in expanded form, we have to know the place value of each digit. For the number 542, we would write 500 + 40 + 2.**

TEACHER DO: Write 500 + 40 + 2 on the board.

TEACHER SAY: **The 5 tells us we have 500, or 5 Hundreds. The 4 tells us we have 40, or 4 Tens. The 2 tells us we have 2 Ones.**

TEACHER DO: Point out the 5, 4, and 2.

2.TEACHER SAY: **See how I have stretched out the number so you can see the different parts? I want to show you this in another way. I have 9 number cards. The cards have the numbers 1 to 9 on one side. They all have the number 0 on the back. You will see why in just a few minutes. I am going to hand these numbers out randomly to some of you.**

TEACHER DO: Hand out all of the number cards randomly to students.

TEACHER SAY: **I am going to say a 3-digit number. If you have one of the digits in the number I call, please come to the front of the room. My number is 694.**

 STUDENTS DO: Go to the front of the room if they are holding the 6, 9, or 4.

TEACHER SAY: **Hold your card in front of you and work together to form the number 694.**

 STUDENTS DO: Work together to create the number 694.

TEACHER DO: Write 694 = on the board.

TEACHER SAY: **I want to write 694 in expanded form. First, we look at the Hundreds place. I want my friend in the Hundreds place to hold that number up high. I want my two other friends to flip their numbers around to show the 0 and hold it up high.**

 STUDENTS DO: Hold the numbers above their heads to show the number 600.

TEACHER SAY: **The 6 is in the Hundreds place. We can see that the 6 in 694 has a place value of 600. Great job.**

TEACHER DO: Write 600 on the board. (Now the board will read 694 = 600.)

TEACHER SAY: **Let's move to the next digit: 9. My friend holding the 6, please put your number down. My friend holding the number 9, show your 9 and hold it above your head. (The students should show 90).**

STUDENTS DO: Two students hold the numbers above their heads.

TEACHER SAY: The 9 is in the Tens place. We can see that the nine in 694 has a place value of 90.

TEACHER DO: Write + 90 on the board. (Now the board will read 694 = 600 + 90.)

TEACHER SAY: My friend holding the 9, please put your number down. The person holding the last digit, please turn your card back around to show the 4. The last digit is in the Ones place, so we know that the 4 in 694 has a place value of 4.

TEACHER DO: Write + 4 on the board. (Now the board will read 694 = 600 + 90 + 4.)

TEACHER SAY: What I have written on the board is called the expanded form. This is the standard form (point to 694) and this is the expanded form (point to the right half of the equation). Let's try another one. Helpers, I will take those cards and you may have a seat.

 **STUDENTS DO:** Helpers hand the teacher their cards and sit.

TEACHER DO: Repeat this activity with the number 537. Make sure you write the standard and expanded forms on the board for students to see. Each time a helper reveals the place value of their number, be sure to point it out to students.

TEACHER SAY: Turn and Talk to a Shoulder Partner to tell them what expanded form means in your own words. You can use what I have written on the board to help you.

 **STUDENTS DO:** Share their understanding of expanded form with their **Shoulder Partner**.

TEACHER DO: As students talk, walk around to listen, helping as needed and noting students who do not understand.

3.TEACHER SAY: Let's play a game to practice showing numbers in expanded form. This game is called Find Your Partner. I am going to hand out a card to each student. On your card will be a number written in standard form or expanded form. Your challenge is to find the student who has a number that matches yours. For example, if I have a card with 400 + 20 + 9, then I am looking for a friend with a card that says 429 on it.

TEACHER DO: Write the example on the board. Hand out the cards, one to each student.

TEACHER SAY: You will have about 3 minutes to find your matches. Once you get your number, think about what you are looking for. Once you find your partner, sit down next to each other. That will show me that you are done. Ready? Go.

 **STUDENTS DO:** Find someone who has the card that matches theirs.



Reflect (5 minutes)

Directions

1.TEACHER SAY: Today we learned a new way to write numbers. I want you to Turn and Talk to your Shoulder Partner and tell them one thing you learned today.

 **STUDENTS DO: Turn and Talk** to their **Shoulder Partner** to share one thing they learned today about writing numbers.

TEACHER DO: Allow students time to share. Walk around the room to check answers and listen to students as they share their learning.

TEACHER SAY: Great work today, class. Give yourselves a pat on the back.

 **STUDENTS DO:** Reach up and pat their backs.

Lesson 24 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Read and write 3-digit numbers in standard and expanded form. • Read and write numbers 1 to 9 and multiples of 10 through 90 in word form.	• Expanded form • Place value • Standard form • Value • Word form	• Calendar Math area • Find Your Partner game cards • Standard Form/Word Form chart • Student book and pencil

LESSON PREPARATION

Gather Find Your Partner game cards from Lesson 23.

Create and display a Standard Form/Word Form chart. See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

1.TEACHER DO: Use the **Calling Sticks** to select one student.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

TEACHER DO: Guide student helper through the procedure, including the following:

- Current month
- All months of the year
- Current day
- All days of the week
- Today's date: Today is (day of week) the (date) of (month) (year).
- Yesterday and tomorrow
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

2.TEACHER DO: If time allows, have student helper ask the class questions about the calendar.

 **STUDENTS DO:** Helper asks questions. All students participate in answering the questions.

3.TEACHER DO: Have the student helper lead the class in skip counting by 2s, 5s, 10s, or 100s. Consider changing the process by having students play Stand Up, Sit Down or by alternating counting between girls and boys.

 **STUDENTS DO:** Helper leads the class in skip counting. All students count aloud with the helper.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students continue to practice reading numbers in expanded form by playing Find Your Partner. They then learn how to write numbers 1 to 9 and multiples of 10 (to 90) in word form.

1.TEACHER SAY: **I want you to Lean and Whisper to your Shoulder Partner and tell them two ways we can write numbers.**

 STUDENTS DO: **Lean and Whisper** to their **Shoulder Partner** and discuss two ways we can write numbers.

TEACHER SAY: **I heard great conversations. Yesterday we learned how to write numbers in expanded form. We also played a game called Find Your Partner to help us match numbers written in standard form to their match written in expanded form. We are going to play again today.**

TEACHER DO: Review the rules and directions, if necessary.

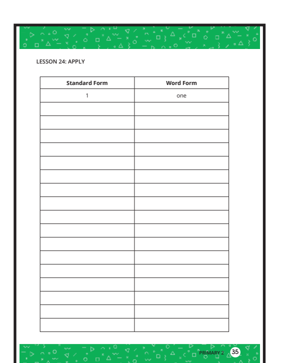
TEACHER SAY: **Remember, if I have a card with 600 + 30 + 5, I am looking for my friend with a card that says 635 on it.**

TEACHER DO: Write the example on the board. Give each student one card. If you have an odd number of students, you will have to play the game so that each student has a partner.

TEACHER SAY: **You will have about 3 minutes to find your matches. Once you get your number, think about what you are looking for. Once you find your partner, sit down next to each other. That will show me that you are done. Ready? Go.**

 STUDENTS DO: Find someone who has the card that matches theirs.

TEACHER DO: After students play the game once, collect the cards and have students return to their seats.



2.TEACHER SAY: **There is another way we can write numbers. We can use word form. Each number has a name, and we can write the name to show the number. Today we are going to learn to write the number words for numbers 1 to 9. We will also learn to write the number words for multiples of ten—the numbers we say when we skip count by 10s. Let's get our student books out and turn to page Lesson 24: Apply.**

 STUDENTS DO: Take out student book and turn to page Lesson 24: Apply.

TEACHER SAY: **On this page you will see a chart. On the chart you see some words at the top of the columns. One column says Standard Form and the other column says Word Form.**

TEACHER DO: Display the Standard Form/Word Form chart.

TEACHER SAY: **Today we are going to fill in this chart together. That way you will have it in your student book, so you can look back at it whenever you need help. Let's start with the number 1. In the first column, write the number 1.**

TEACHER DO: **Model** for the students. Write the number 1 on your chart.

 STUDENTS DO: Write the number 1 on the chart.

TEACHER SAY: **The word form of the number one is written like this: o-n-e.**

TEACHER DO: **Model** writing the number 1 in written form on the chart.

TEACHER SAY: **Let's spell it aloud as we write it on our chart: O-N-E.**

 **STUDENTS DO:** Spell the number one aloud as they write it on the chart.

TEACHER DO: Continue with numbers 2 to 9, 10, 20, 30, 40, 50, 60, 70, 80, and 90.

 **STUDENTS DO:** Complete the chart with their teacher.

3.TEACHER SAY: That was a lot of hard work but you all did a great job. Now I am going to call out a number, and I want you to point to the written form of that number. My first number is 50.

 **STUDENTS DO:** Point to the written form of 50.

TEACHER DO: Point to the written form of 50 on the board so students can self-check their answer. Continue with the other numbers until all of the numbers on the chart have been called out.

 **STUDENTS DO:** Point to the written form of the numbers called out. Check answers with the teacher.



Reflect (5 minutes)

Directions

1.TEACHER SAY: It is time to Reflect. Today I want you to challenge yourself a bit. Turn to page Lesson 24: Math Journal in your student book.

 **STUDENTS DO:** Turn to page Lesson 24: Math Journal in the student book.

TEACHER SAY: On your Math Journal page, try to write the word form of some numbers we practiced today without looking at the chart we just created. After you write a number, you can check your answer by looking at the chart.

 **STUDENTS DO:** In the time left, write several numbers in word form. Check their answers using the chart in their student book.

TEACHER DO: As students work, walk around to check, support, and assess who understands and who does not.

TEACHER SAY: Great work today. You are learning so much about numbers, and I am proud of your efforts. Please put away your student book.

 **STUDENTS DO:** Put away student book.



Lesson 25 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Convert numbers in expanded form to standard form.
- Read and write numbers 1 to 9 in word form.
- Match the word form of numbers 11 to 19 to their standard form.

KEY VOCABULARY

- Expanded form
- Standard form
- Word form

MATERIALS

- Calendar Math area
- Dice (one die per small group of students)
- Student book and pencil

LESSON PREPARATION

Gather one die (or create paper dice) for each small group of three students.



Calendar Math (15 minutes)

Directions

1.TEACHER DO: Use the **Calling Sticks** to select one student.



STUDENTS DO: Selected student leads Calendar Math. All students participate.

TEACHER DO: Guide student helper through the procedure, including the following:
- Current month
- All months of the year
- Current day
- All days of the week
- Today's date: Today is (day of week) the (date) of (month) (year).
- Yesterday and tomorrow
- Days in school (place value pockets, circle 120 Chart, count aloud)
  - Every 10th day, help students regroup the straws and move the new bundle of 10 to the Tens pocket.

2.TEACHER DO: If time allows, have student helper ask the class questions about the calendar.



STUDENTS DO: Helper asks questions. All students participate in answering the questions.

3.TEACHER DO: Have the student helper lead the class in skip counting by 2s, 5s, 10s, or 100s. Consider ways to change the way students are counting to keep the activity interesting and new.



STUDENTS DO: Helper leads the class in skip counting. All students count aloud with the helper.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students practice reading and writing numbers in expanded form and written form.

1.TEACHER SAY: **Today we are going to begin with an activity called Shake It Share It High Five. First, you will move around the room and find a partner. Second, once you have found a partner, you will shake their hand. Third, I will ask a question. Fourth, you will share your thinking with your partner, and fifth, you will give them a high five. Then everyone will find a new partner and do it again. Let's give it a try. Go ahead and find a partner. You have 30 seconds.**

 STUDENTS DO: Find a partner for **Shake It Share It High Five** and shake hands.

TEACHER SAY: **My first question is: What is one way we can write numbers?**

 STUDENTS DO: Share their answer with their partner.

TEACHER DO: Allow time for students to share.

TEACHER SAY: **Now give them a high five, find a new partner, and shake your new partner's hand.**

 STUDENTS DO: High Five their partner. Then find a new partner and shake their new partner's hand.

TEACHER SAY: **Next question: I will write a number in expanded form on the board. Work with your new partner to come up with the standard form for the number I write. I will call on one pair to write their answer on the board.**

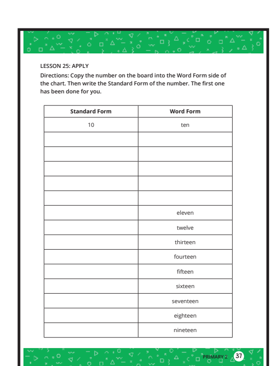
TEACHER DO: Write 900 + 90 + 9 on the board. Allow time for students to solve.

 STUDENTS DO: Share their answer with their partner.

TEACHER DO: Call on one pair to write the number on the board.

TEACHER SAY: **Great job. You may go back to your desk now.**

 STUDENTS DO: Go back to their desks.



LESSON 25: APPLY

Directions: Copy the number on the board into the Word Form side of the chart. Then write the Standard Form of the number. The first one has been done for you.

Standard Form	Word Form
10	ten
	eleven
	twelve
	thirteen
	fourteen
	fifteen
	sixteen
	seventeen
	eighteen
	nineteen

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TEACHER SAY: **Now we are going to practice what we learned yesterday—writing numbers in word form. Yesterday we filled in a chart in our student books for some numbers. Today I am going to write a number in word form on the board. You will copy the word form and then write the standard form of the number. Open your student book to page Lesson 25: Apply.**

 STUDENTS DO: Open student book to page Lesson 25: Apply.

TEACHER DO: Write on the board: ten.

TEACHER SAY: **For example, I wrote ten in word form on the board. First, you will copy what I wrote into your student book. Then you will write the standard form of ten. You can see that it is done for you in your book. Ready? Let's begin.**

TEACHER DO: Write on the board: seven. Read the number aloud.

TEACHER SAY: **Copy what I wrote. Then write the standard form of seven.**

 STUDENTS DO: Write seven and 7 in the student book.

TEACHER DO: Write the answer on the board so students can self-check their work. Repeat the process with four more numbers.

2. TEACHER SAY: **The next numbers I will write are numbers that we did not put in our chart yesterday. You do not need to know how to write these numbers in word form, but you do need to be able to read them and write the standard form of the number.**

TEACHER DO: Write on the board: eleven.

TEACHER SAY: **This is the word form for the number 11. Write 11 in your student book.**



STUDENTS DO: Write 11 in the student books.

TEACHER DO: Continue with numbers 12 to 19.



STUDENTS DO: Write the standard form of the numbers given in word form. Check answers and correct them if necessary.



Reflect (5 minutes)

Directions

1. TEACHER SAY: **For Reflect today, Turn and Talk to your Shoulder Partner about which way you prefer to write numbers—standard form, expanded form, or word form—and explain why. Which form do you like the least? Explain why. Do you and your partner agree?**



STUDENTS DO: **Turn and Talk** to their **Shoulder Partner** to discuss their favorite and least favorite form to write numbers. Explain their thinking.

TEACHER DO: Walk around and listen to student's conversations to see who is struggling. When finished, have a few partners share their thinking with the class.

Lesson 26 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Read and write 3-digit numbers in standard and expanded form.

KEY VOCABULARY

- Expanded form
- Standard form
- Word form

MATERIALS

- Calendar Math area
- I Have… Who Has…? game cards
- Student book and pencil

PREPARATION

Print out I Have... Who Has...? game cards for the class. (See the I Have… Who Has? Blackline Master.) See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students play the game I Have... Who Has...? If you have 30 or fewer students, follow the procedure below. If you have more than 30 students, adjust the procedure as follows: After you demonstrate how to play the game, divide your class into large groups and give each group their own set of game cards. Instead of playing the game together as a class, they will play in large groups. If you have 31 to 40 students, consider adding cards to the set of game cards so that everyone can play together. See the I Have… Who Has? Game Cards Blackline Master for blank cards.

1.TEACHER SAY: For the past few days, we have been working hard to learn different ways to write numbers. We learned about standard form, word form, and expanded form. Today we are going to play a game to help us learn how to read these different numbers better and faster. The game is called I Have... Who Has...? I am going to hand out a card to each student.

TEACHER DO: Hand out one I Have... Who Has...? game card to each student.

TEACHER SAY: There are two sentences on each card. They say, "I have ____." and "Who has _____?" I will go first. I will read my card aloud. You will listen carefully to see if you have the card I am looking for. I have 224. Who has 300 + 50 + 3?

I am looking for the person who has the standard form of 300 + 50 + 3. If you have a card that says, "I have 353," then it is your turn to stand up and read your card aloud. We will keep playing until everyone has read his or her card.

I have 224.
Who has

300 + 50 + 3?



STUDENTS DO: Play I Have... Who Has...? with the class or group.

TEACHER DO: This may be challenging for students the first time they play. If students are playing on their own, walk around and help students who need support. If time allows, mix up the cards and have students play again.



Reflect (5 minutes)

Directions



LESSON 26: MATH JOURNAL

I have 224.
Who has
300 + 50 + 3?

I have ____ .
Who has
____ + ____ + ____ ?

I have ____ .
Who has
____ + ____ + ____ ?

I have ____ .
Who has
____ + ____ + ____ ?

Circle the words that describe your thoughts and feelings about working on numbers in standard and expanded form. You can circle more than one.

fun easy difficult confusing challenging help!

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1. **TEACHER SAY:** **Open your student book to page Lesson 26: Math Journal. For Reflect today, you will write your own version of the I Have... Who Has...? game. The first card is done for you, so you have to begin with the second card. I will give you a few minutes to work on your cards. Remember that each card should connect to the one before it.**



STUDENTS DO: Open student book to page Lesson 26: Math Journal. Work on their I Have… Who Has…? game cards.

TEACHER DO: After a few minutes, use an **Attention Getting Signal**.

TEACHER SAY: **At the bottom of your Math Journal page is a box. It says, "Circle the words that describe your thoughts and feelings about working on numbers in standard and expanded form. You can circle more than one." The words are fun, easy, difficult, confusing, challenging, and help!"**



STUDENTS DO: Circle the word(s) that describe their thoughts and feelings.

TEACHER SAY: **Well done today, friends. Please put away your student books.**



STUDENTS DO: Put away student books.

Lesson 27 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Use place value to compare two 3-digit numbers.
- Use the symbols >, =, and < to express comparisons.

KEY VOCABULARY

- Compare
- Equal (=)
- Greater than (>)
- Less than (<)
- Symbol

MATERIALS

- Calendar Math area
- Greater than, less than, and equal signs
- Number Comparison card sets (one set per pair of students)
- Materials to make >, <, and = symbols (two per pair of students)
- Student book and pencil

LESSON PREPARATION

Create >, <, and = signs. These signs can be made or printed on regular paper.
Create or print sets of Number Comparison cards (one set for each pair of students).
See the 3-digit Number Comparison Cards Blackline Master.
Gather materials students can use to create the >, <, and = symbols. Suggestions include popsicle sticks, straws cut in half, chenille stems (pipe cleaners), crayons, or large paper clips. You will need two pieces for each pair of students.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students compare numbers up to 1,000 using the greater than (>), less than (<), and equal to (=) symbols.

1.TEACHER SAY: Last year, you learned how to compare numbers. You used symbols to help you show which number was greater and which number was less and which numbers were equal to each other. This year, you will compare numbers again, but they will be larger numbers. You will use what you know about place value to help you. Let's get started.

TEACHER DO: Post the >, <, and = signs on the board.

TEACHER SAY: First, I want to see what you remember about these symbols. Find a partner using Hands Up, Pair Up.

 **STUDENTS DO:** Find a partner using **Hands Up, Pair Up**.

TEACHER SAY: Discuss these symbols with your partner and remind each other what they mean. I will use Calling Sticks to select some of you to share your thinking.

 **STUDENTS DO:** Discuss the symbols with their partners. Selected students share their thinking about the symbols.

TEACHER DO: Correct or confirm students' thinking.

2. TEACHER SAY: Let's use these symbols to help us compare 3-digit numbers.

TEACHER DO: Write 731 ___ 378 on the board.

TEACHER SAY: I have written 731 and 378 on the board. We want to use a symbol to compare these numbers. First, we need to determine which number is greater or which number is smaller. When we compared 1-digit numbers last year, we could just look at the quantity. We could see that 9 is greater than 2. But when we get to large numbers, we cannot always see the quantities quickly or easily. We can use what we know about place value to help us.

Where do you think we should begin when comparing numbers—the Hundreds place, the Tens place, or the Ones place? Think for a moment, then share your thinking with your Shoulder Partner.

 **STUDENTS DO:** Think quietly for a moment. Then share ideas with a **Shoulder Partner**.

TEACHER DO: Listen to the conversations to learn which students have a grasp of the concept before you introduce it. If possible, ask those students to explain their thinking to the class. If no students understand why they need to start with the Hundreds place, explain it to the class.

TEACHER SAY: Let's look at these two numbers. Raise your hand if you can circle the digits in the Ones place in both numbers.

 **STUDENTS DO:** Raise hands to volunteer. Selected student circles the digits in the Ones place in both numbers.

TEACHER SAY: Which number is greater—1 or 8?

 **STUDENTS DO:** Call out together: 8.

TEACHER SAY: So, if we just looked at the Ones place, we would think 378 is the bigger number. Is it? Talk to your Shoulder Partner. Give me a Thumbs Up when you are ready.

 **STUDENTS DO:** Talk with a **Shoulder Partner** about the teacher's question. Give a **Thumbs Up** when they are ready. Selected students share their answers.

TEACHER SAY: Let's see if your thinking is right. Let's look at the Hundreds place in these two numbers. Raise your hand if you can underline the digits in the Hundreds place in both of these numbers.

 **STUDENTS DO:** Raise hands to volunteer. Selected student underlines the digits in the Hundreds place.

TEACHER SAY: Which number is greater—700 or 300?

 **STUDENTS DO:** Call out together: 700.

TEACHER SAY: Yes, 700 is greater than 300. That tells us we really need to look at the Hundreds place when comparing 3-digit numbers. That is the place that tells us which number is greater and which is smaller. Give yourself a pat on the back if you figured that out.

 **STUDENTS DO:** Pat themselves on the back.

TEACHER SAY: Now we can use the > sign to complete our number comparison. Remember, the open part of the sign always faces the greatest number.

TEACHER DO: Complete the statement on the board: 731 > 378.

TEACHER SAY: Let's try one more together.

TEACHER DO: Write 413 __ 492 on the board.

TEACHER SAY: I have 413 and 492 written on the board. Remember, we always start in the place with the greatest value. Since these numbers are 3-digit numbers, that is the Hundreds place. Raise your hand if you can circle the digits in the Hundreds place in these numbers.



STUDENTS DO: Raise hand to volunteer. Selected student circles the digits in the Hundreds place in both numbers.

TEACHER SAY: What do you notice about the digits in the Hundreds place? Raise your hand if you would like to share your thinking.



STUDENTS DO: Raise hands to volunteer. Selected students share their thinking.

TEACHER SAY: Yes, both numbers have a 4 in the Hundreds place. So, what should we do? Think for a moment and then share your thinking with your Shoulder Partner. Give me a Thumbs Up when you are ready. What should we do?



STUDENTS DO: Think for a moment and then talk to their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their ideas.

TEACHER DO: Listen to the conversations to learn which students have a grasp of the concept before you introduce it. If possible, ask those students to explain their thinking to the class. If no students understand that they need to move to the Tens place, explain it to the class.

TEACHER SAY: Since both numbers have a 4 in the Hundreds place, we have to look at the place with the next highest value—the Tens place. Raise your hand if you can underline the digits in the Tens place in both numbers.



STUDENTS DO: Raise hand to volunteer. Selected student underlines the digits in the Tens place.

TEACHER SAY: Now let's compare the digits in the Tens place. Which is greater, 1 or 9?



STUDENTS DO: Call out together: 9.

TEACHER SAY: Yes, 9 is greater, so 492 is greater than 413. Now we can use the < sign to complete our number comparison. Remember, the open part of the sign always faces the greatest number.

TEACHER DO: Complete the statement on the board: 413 < 492.

3.TEACHER SAY: Now it is your turn to try. You are going to work with your Shoulder Partner. I am going to give each pair of you a set of number cards and two popsicle sticks (or other material you selected).

TEACHER DO: Hand out supplies to each pair of students.

TEACHER SAY: I will write a comparison problem on the board. You will find those number cards and set them out in front of you. Then you will work with your partner to determine which symbol you need to create with your popsicle sticks to make the problem correct.

TEACHER DO: Model making >, <, and = with the popsicle sticks. You may choose to have students practice with you.

TEACHER SAY: The first comparison problem we will do is 938 _____ 689. Find those two number cards and then make the symbol that goes between the two numbers. Remember to start in the Hundreds place first. You may begin.



STUDENTS DO: Work with their **Shoulder Partner** to compare the two numbers and make a symbol to show the comparison.

TEACHER DO: Walk around the room, offering help to students as needed. Write the correct symbol on the board and have students check their work.

 **STUDENTS DO:** Check their work and correct it if necessary.

TEACHER DO: Repeat the procedure with additional comparison problems using the numbers on students' cards.

 **STUDENTS DO:** Work with their **Shoulder Partner** to compare two numbers and make a symbol to show the comparison. Check their work and correct it if necessary.

TEACHER SAY: **Great work today. I really enjoyed listening to your conversations. You are learning so much about place value and comparing numbers. Please put your materials back in the bag.**



Reflect (5 minutes)

Directions

1. **TEACHER DO:** Write the numbers 153,768 and 624,091 on the board.

TEACHER SAY: **Look at the two numbers on the board. If I asked you to compare them and tell me which is greater and which is less, could you do that? How? What did you learn today that could help you? Turn and Talk to your Shoulder Partner and share your thinking. Could you compare these two numbers? How?**

 **STUDENTS DO:** Share their thinking with their **Shoulder Partner**.

TEACHER DO: Listen as students talk. After about two to three minutes, select a few students to share their thinking. If no students recognize that they can compare the two numbers by comparing the digits in the place with the highest value, explain it to students. If time allows, **model** how to compare the two numbers. Close by having students give their **Shoulder Partner** a high five.

 **STUDENTS DO:** High Five their **Shoulder Partner**.

Lesson 28 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Use place value to compare two 2-digit and 3-digit numbers.
- Use the symbols >, =, and < to express comparisons.

KEY VOCABULARY

- Compare
- Digit
- Equal (=)
- Greater than (>)
- Less than (<)

MATERIALS

- Calendar Math area
- Greater than, less than, and equal signs
- Number Comparison card sets (one set per pair of students)
- Number Comparison card 2 sets (one set per pair of students)
- Student book and pencil

LESSON PREPARATION

Print sets of Number Comparison cards (one set for each pair of students). Add the new cards to the students' card sets from Lesson 27. See the 2-digit Number Comparison Cards Blackline Master.

Students will not need materials to create the greater than/less than symbols.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.**TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students compare numbers to 1,000 using >, <, and =. Today's focus will be numbers that do not have the same number of digits.

1.**TEACHER SAY:** **Yesterday we compared numbers that had the same number of digits. Today we are going to learn how to compare two numbers that do not have the same number of digits. Let's take a look at an example.**

TEACHER DO: Write 215 _____ 79 on the board.

TEACHER SAY: **Read the first number with me. Two hundred fifteen.**

 **STUDENTS DO:** Say with the teacher: two hundred fifteen.

TEACHER SAY: **Now let's read the second number together. Seventy-nine.**

 **STUDENTS DO:** Say: seventy-nine.

TEACHER SAY: **What do you notice about these two numbers? Which symbol do you think should be written between them? Turn and Talk with your Shoulder Partner. Give me a Thumbs Up when you are ready to share your thinking.**

TEACHER DO: Listen as partners talk to assess understanding of the role of place value in comparing numbers.



STUDENTS DO: Discuss ideas with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their thinking with the class.

TEACHER DO: Confirm or correct students' thinking. As students share, make sure all the following points are discussed (by you or the students):

- There are more digits in 215 than 79.
- The digits in 79 are all larger than the digits in 215.
- There are no digits in the Hundreds place for 79.

2. **TEACHER SAY: You did a great job noticing so many things about these two numbers. Yesterday we learned that we always have to look at the number in the place with the greatest value. Since one of our numbers goes to the Hundreds place, we have to look at the Hundreds place for both numbers. How many Hundreds does 215 have?**



STUDENTS DO: Call out: 2.

TEACHER SAY: That's right. Two. How many Hundreds does 79 have?



STUDENTS DO: Call out: zero (or none).

TEACHER SAY: That's right. Zero. Which number is greater, 2 or 0?



STUDENTS DO: Call out: 2.

TEACHER SAY: Great thinking, so that confirms for us that 215 is the greater number. Let's try a few more together and then you will do some on your own.

TEACHER DO: Write 46 _____ 123 on the board.

TEACHER SAY: Please read the first number with me. Forty-six.



STUDENTS DO: Say with the teacher: forty-six.

TEACHER SAY: Let's read the second number together. One hundred twenty-three.



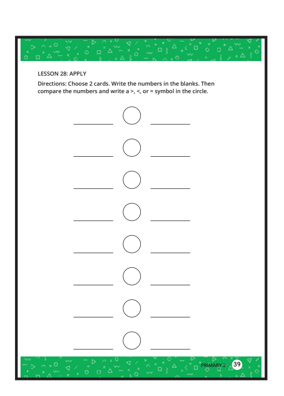
STUDENTS DO: Say with the teacher: one hundred twenty-three.

TEACHER SAY: Think for a moment and then point to the smaller number.



STUDENTS DO: Think for a moment and then point to 46.

TEACHER SAY: Great job. 46 is less than 123, so we use the less than symbol.



TEACHER DO: Draw < between 46 and 123. Repeat this process for a few more combinations of 2-digit and 3-digit numbers, depending on the need of your class.

TEACHER SAY: Now you are going to work with your Shoulder Partner to practice some comparison problems on your own. Open your student book to page Lesson 28: Apply.



STUDENTS DO: Open student book to page Lesson 28: Apply.

TEACHER DO: Hand out supplies to each pair of students.

TEACHER SAY: You and your partner will take out two cards and write the numbers in your student book. Work together to decide which symbol should go in the circle to show how the numbers compare to each other and then write it in the circle.



STUDENTS DO: Work together to take out two numbers, copy them into their student book, and write a symbol in the circle between the two numbers.

TEACHER DO: Walk around the room, offering help to students as needed. Listen to students' conversations to identify students who may need additional instruction or support. At the end of the Learn segment, use an **Attention Getting Signal**.

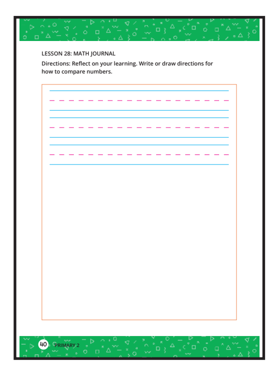
TEACHER SAY: **Wonderful work today. You are all such great math thinkers, and I like how hard you work to learn new skills. Please put away your materials, but keep out your student book.**

 **STUDENTS DO:** Put away materials. Keep out student book.



Reflect (5 minutes)

Directions



LESSON 28: MATH JOURNAL

Directions: Reflect on your learning. Write or draw directions for how to compare numbers.

1. **TEACHER SAY:** **I want you to imagine that I have asked you to explain to someone in another Primary 2 class how to compare two numbers. You can use words or pictures or both. You can use numbers. Please turn to page Lesson 28: Math Journal in your student book.**

 **STUDENTS DO:** Open their student books to the Math Journal page for Lesson 28. Write or draw directions for comparing two numbers.

TEACHER DO: If time allows, have some students share their work with the class.

Lesson 29 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Order a set of 5 numbers from least to greatest or greatest to least.	• Greatest • Least • Order	• Calendar Math area • Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.**TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



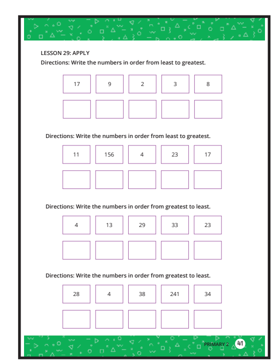
STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students extend their understanding of comparing numbers by ordering numbers from greatest to least and least to greatest.



LESSON 29: APPLY

Directions: Write the numbers in order from least to greatest.

17	9	2	3	8

Directions: Write the numbers in order from least to greatest.

11	156	4	23	17

Directions: Write the numbers in order from greatest to least.

4	13	29	33	23

Directions: Write the numbers in order from greatest to least.

28	4	38	241	34

PRIMARY 2 41

1.**TEACHER SAY: For the past two days, we have compared two numbers, sometimes with the same number of digits and sometimes not. Today we are going to compare a group of numbers to put them in order. We might put them in order from least to greatest or from greatest to least. Let's try this first with a group of easier numbers. Open your student book to page Lesson 29: Apply.**



STUDENTS DO: Open student book to page Lesson 29: Apply.

TEACHER SAY: The directions ask us to write these numbers in order from least to greatest, so first we will decide which of these numbers is the smallest. Look at all five numbers and then Whisper to me which is the smallest number.



STUDENTS DO: Whisper: 2.

TEACHER SAY: You are right. Two is the smallest number in this group, so we will write 2 in the first empty box.



STUDENTS DO: Write 2 in the first box.

TEACHER SAY: Take a look at the four numbers that are left. If it helps you, you can cross out the 2 since we already used it. Which of the four numbers that are left is smallest? Whisper your answer to me.

 **STUDENTS DO: Whisper**: 3.

TEACHER SAY: Yes, the next smallest number is 3. Write 3 in the second box. Remember, if it helps you stay organized, you can cross out the 3.

 **STUDENTS DO:** Write 3 in the second box.

TEACHER SAY: On your own now, please take a few moments and complete the first problem, writing the numbers in order from least to greatest. If you finish before others, you can draw a picture of yourself comparing numbers.

 **STUDENTS DO:** Finish writing the first set of numbers in order from least to greatest.

TEACHER DO: Walk around to observe students as they work. Take note of students who may need additional instruction or support. Identify students who may be able to help others if needed. After 2 to 3 minutes, use an **Attention Getting Signal**.

TEACHER SAY: Please turn to your Shoulder Partner and compare your work. Did you order them in the same way?

 **STUDENTS DO:** Work with a **Shoulder Partner** to compare work. Discuss differences.

TEACHER DO: Select one pair of partners to write their answer on the board.

 **STUDENTS DO:** Selected students write their answer on the board.

TEACHER DO: Make sure the answer on the board is correct.

TEACHER SAY: Check your work. Do you have the same order in your book? If not, correct your work.

 **STUDENTS DO:** Check work. Make corrections if necessary.

2. **TEACHER SAY: Great job ordering the first set of numbers. Think about that same set of numbers. If I asked you to write those numbers in order from greatest to least, which number would we start with? Please Whisper that to me.**

 **STUDENTS DO: Whisper**: 17.

TEACHER SAY: That is right. 17 is the largest, or greatest, number in this list. Which number would come next if we were ordering the numbers from greatest to least? Please Whisper that to me.

 **STUDENTS DO: Whisper**: 9.

TEACHER SAY: Great thinking. Did you notice that, if we order these numbers from greatest to least, we take the list we have on the board and go backward?

TEACHER DO: At the top of the list the students wrote, write Least to Greatest. Next to it, write the same numbers from greatest to least with the title Greatest to Least.

TEACHER SAY: What questions do you have about ordering these numbers in both ways?

 **STUDENTS DO:** Ask questions if needed.

TEACHER DO: Answer questions as needed.

3. **TEACHER SAY: In your student book, you and your Shoulder Partner will now work together on the next lists of numbers. The first problem asks you to write the numbers in order from least to greatest. The last two problems ask you to write the numbers in order from greatest to least.**

 **STUDENTS DO:** Work with **Shoulder Partner** to complete the three practice problems in the student book.

TEACHER DO: As students work, walk around to offer suggestions or help as needed. Note who understands and who struggles with this content.



Reflect (5 minutes)

Directions

1. **TEACHER SAY:** **For Reflect time today, you and your Shoulder Partner will team up with two other Shoulder Partners. I want you to compare your work with each other and discuss any difference you see in how you ordered the numbers. You will have about 3 minutes.**

TEACHER DO: Help students find partner pairs.

 **STUDENTS DO:** Find another **Shoulder Partner** pair and compare answers. Revise work as needed.

TEACHER DO: Use an **Attention Getting Signal** and have students return to their seats. Go over the correct answers.

 **STUDENTS DO:** Return to seats. Check their work.

TEACHER SAY: **Great work today, class. Give all of your partners a high five.**

 **STUDENTS DO:** Give their partners a high five.

Lesson 30 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Compare and order numbers in expanded, word, and standard forms.

KEY VOCABULARY

- Compare
- Expanded form
- Order
- Standard form
- Word form

MATERIALS

- Calendar Math area
- Standard Form/Word Form poster
- Number cards (for the teacher)
- Blank note cards (5 to 10 per student)
- Student book and pencil

PREPARATION

Display the Standard Form/Word Form poster you created in Lesson 24 (if it is not already posted).

Create number cards (at least 20 cm x 25 cm) for the following: two hundred thirty-six, 300 + 50 + 1, 141, and seventy-six.

Prepare small pieces of blank paper or index cards so that each student can have 5 to 10 pieces. (In a smaller class, students can have more cards; a larger class can have fewer.)



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students create cards to be used in a game of Number Blast. Use the four number cards you created to **Model** *game play for students. Provide enough note cards (or small pieces of paper) for every student to have 5 to 10 cards.*

1.TEACHER DO: Before the lesson begins, display the Standard Form/Word Form poster.

TEACHER SAY: Over the past few days, you have practiced reading and writing numbers in standard form, expanded form, and word form; comparing numbers; and ordering numbers. Today you are going to combine all of your learning into a fun game that you will create and play. Let's do some review first.

TEACHER DO: Display the note cards you made.

TEACHER SAY: These are game cards. You get to make your own game cards too. On each game card, you will write numbers in expanded form, word form, or standard form. Then we

will play a game with them. Let's first review how to read these different forms of numbers. Please read each card with me.

 STUDENTS DO: Read each card aloud with the teacher.

TEACHER SAY: **Great job. Raise your hand if you are ready to make some cards of your own. You need to make at least one card in expanded form, one in word form, and one in standard form. For this game, write numbers with two or three digits. If you are not sure how to spell one of the numbers, check the poster here (point to the poster you displayed). Each of you will create _____ (number of cards you will hand out) game cards. What questions do you have?**

 STUDENTS DO: Ask questions if they have any.

TEACHER SAY: **I am going to use the Calling Sticks to call on two people to repeat the directions to make sure we all know what to do.**

 STUDENTS DO: Selected students repeat the directions.

TEACHER DO: Clarify as needed. Consider writing the following directions on the board:

- Create at least 3 game cards.
- Write one number on each game card.
- Write at least one number in expanded form, one in word form, and one in standard form.
- Use the poster to help you with spelling.

TEACHER SAY: **You may begin. You will have about 8 minutes to work.**

TEACHER DO: As students work, circulate around the room, offering help as needed. Make sure students are following the directions.

 STUDENTS DO: Create at least 3 game cards.

2.TEACHER DO: After approximately 8 minutes (adjust according to the needs of your students), use an **Attention Getting Signal** to bring the group back together.

TEACHER SAY: **You did a great job making your own cards with different numbers in different forms. Now we get to play a game. Raise your hand to help me demonstrate the game. You will bring your cards with you.**

 STUDENTS DO: Raise hands to volunteer. Selected student goes to the front of the room with their game cards and helps the teacher demonstrate.

TEACHER SAY: **Now we will show you how to play the game Number Blast. We will each turn over one card and read our number aloud. Whoever has the largest number wins that round.**

TEACHER DO: Take your cards off the board and put them in a pile. On the count of three, you and the student each over turn one card. Each of you reads your number aloud and whoever has the largest number takes both cards. Repeat for two to three more rounds to make sure students understand the game.

TEACHER SAY: **Since you are working with a partner for this game, it is important to check each other and make sure your partner is reading the number correctly. You will get to play this game with your Shoulder Partner now. Any questions first?**

 STUDENTS DO: Ask questions if needed.

TEACHER SAY: **You may begin playing Number Blast. If you finish all of your cards, divide them up and play again.**

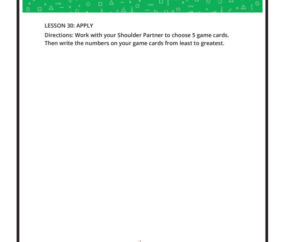
 STUDENTS DO: Play Number Blast with their partners.

3.TEACHER DO: After approximately 10 minutes, use an **Attention Getting Signal** to bring the group back together.

TEACHER SAY: Raise your hand if you had fun playing that game.

 **STUDENTS DO:** Raise hands if they had fun.

Note to the Teacher: In the next activity, students write 5 numbers from their game cards in order from least to greatest. However, if students are ready for an additional challenge, allow them to choose whether they will order from least to greatest or from greatest to least.



TEACHER SAY: Open your student book to page Lesson 30: Apply.

 **STUDENTS DO:** Open student book to page Lesson 30: Apply.

TEACHER SAY: Now you and your Shoulder Partner will use your note cards for one final activity. Working together, choose 5 game cards. Then write the numbers on those game cards in order from least to greatest. Record your work in your student book.

 **STUDENTS DO:** Work with a **Shoulder Partner** to choose 5 game cards and write the numbers on them in order from least to greatest in their student books.

TEACHER DO: Monitor student learning and understanding, noting who needs more support. Once you see most students are finished, use an **Attention Getting Signal** to bring the group back together.

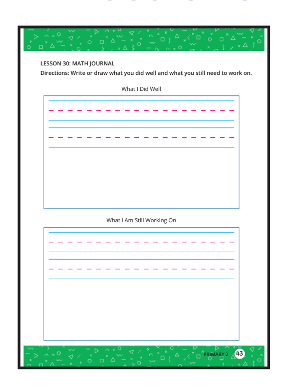
TEACHER SAY: You did great work today. You wrote numbers in different forms and compared them and then you ordered those numbers.

TEACHER DO: If time permits, ask a few student pairs to come to the front of the class to share their work.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: For Reflect time, think about all the work you did today. Open your student book to page Lesson 30: Math Journal and write or draw what you did well and what you still need to work on.**

 **STUDENTS DO:** Reflect on their learning. Open student book to page Lesson 30: Math Journal. Write or draw what they did well and what they still need to work on.

TEACHER SAY: That was a fun day in math. You did a wonderful job working, learning, and playing today. You may now put away your student book and pencil.

 **STUDENTS DO:** Put away materials.

PRIMARY 2

Mathematics

WORLD AROUND ME

Chapter 4

Lessons 31 to 40

Chapter Overview

World Around Me

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 31 to 40, students will work toward the following learning indicators:

B. OPERATIONS AND ALGEBRAIC THINKING

1.a. Explain Commutative Property of Addition of numbers up to 1,000 (does not need to know the name of the property).
1.b. Fluently add and subtract within 20 using mental strategies.
1.c. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
1.d. Solve addition and subtraction problems within 100 with one unknown in any position within the equation.
1.e. Recall all sums of two one-digit numbers.

C. NUMBERS AND OPERATIONS IN BASE TEN:

1.i. Use place value to compare two numbers up to 1,000.
1.j. Use the symbols >, =, and < to express comparisons.
1.k. Order a set of up to 5 numbers with values up to 1,000 from least to greatest or greatest to least.
2.a. Apply a variety of problem-solving strategies based on concrete models or drawings, place value concepts, properties of operations, and/or the relationship between addition and subtraction and relate the strategy to a written method.
2.b. Fluently add and subtract two 2-digit numbers with or without regrouping.
2.c. Add up to four 2-digit numbers with regrouping.
2.f. Use estimation strategies in problem-solving, such as mentally adding and subtracting 10 or 100 (within 1,000).

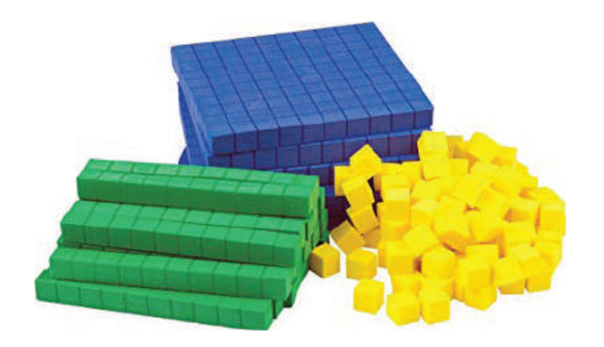
CH 1 Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
31	**Students will:** • Participate in Calendar Math activities. • Explain the Commutative Property of Addition. • Apply mental math strategies to solve addition and subtraction problems.
32	**Students will:** • Participate in Calendar Math activities. • Apply mental math strategies to solve addition and subtraction problems.
33	**Students will:** • Participate in Calendar Math activities. • Decompose 2-digit numbers into Tens and Ones.
34	**Students will:** • Participate in Calendar Math activities. • Add two 2-digit numbers without regrouping. • Decompose 2-digit numbers to solve addition story problems.
35	**Students will:** • Participate in Calendar Math activities. • Subtract 2-digit numbers without regrouping. • Decompose 2-digit numbers to solve subtraction story problems.
36	**Students will:** • Participate in Calendar Math activities. • Use place value to estimate sums and differences. • Solve 2-digit addition and subtraction problems without regrouping.
37	**Students will:** • Participate in Calendar Math activities. • Use place value to estimate sums. • Decompose 2-digit numbers to solve addition problems.
38	**Students will:** • Participate in Calendar Math activities. • Decompose 2-digit numbers to solve addition problems. • **Model** regrouping using pictures or manipulatives.
39	**Students will:** • Participate in Calendar Math activities. • Mentally calculate sums of two 1-digit numbers. • Solve 2-digit addition problems with and without regrouping. • **Model** regrouping using pictures or manipulatives.
40	**Students will:** • Participate in Calendar Math activities. • Collaborate to add four 2-digit numbers.

Chapter Preparation for the Teacher

- For Lesson 32:
  - Gather dice (one die per group of 5 students).
  - Create sets of number cards 1 to 9 (one set for each group of 5 students).

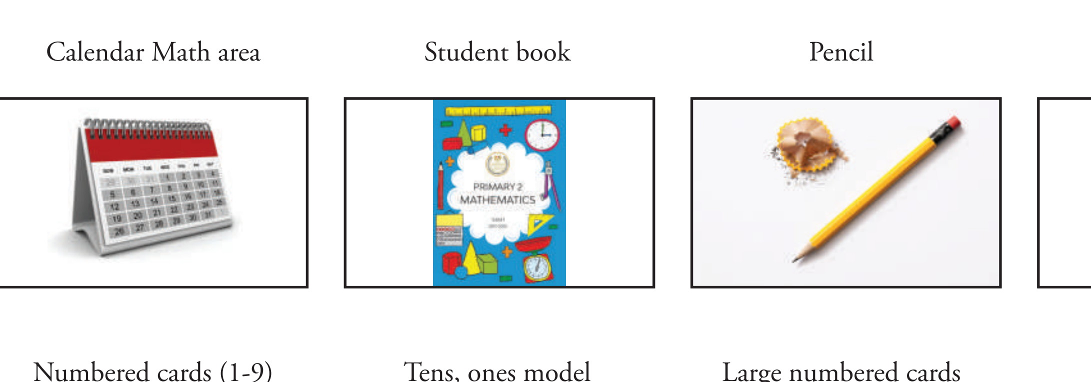
- For Lesson 33:
  - Gather materials that you can use to **Model** at least 9 Tens and 18 Ones and demonstrate decomposing numbers. For example, wooden popsicle sticks, chenille stems (pipe cleaners), or straws for Tens and dried beans or small dried pasta for Ones.
  - If possible, create sets of place value materials for each small group of students.
  - If available, use place value manipulatives such as Base Ten blocks to help students build and apply understanding of place value in addition and subtraction.

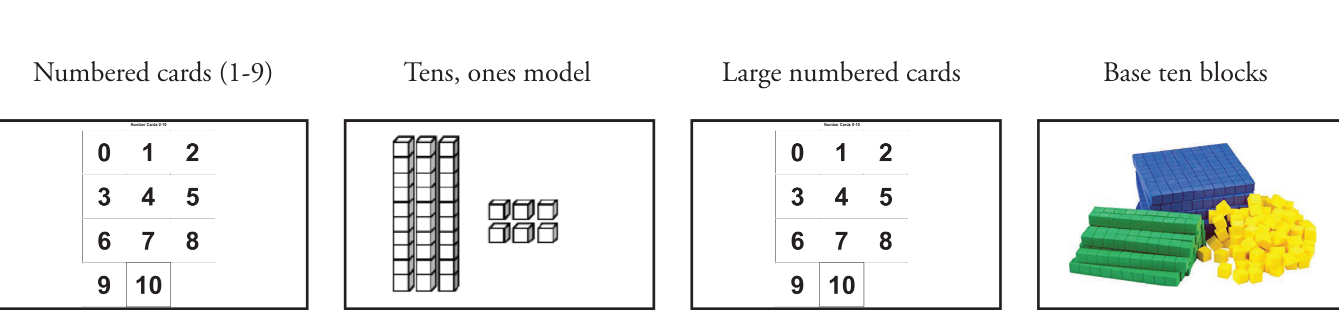


- For Lesson 38:
  - Gather the place value materials you created for Lesson 33.

- For Lesson 39:
  - Gather or create sets of number cards 1 to 9 (one set per pair of students).
  - Create a large set of number cards 1 to 9 for teacher demonstration.

Materials Used





Lesson 31 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Explain the Commutative Property of Addition. • Apply mental math strategies to solve addition and subtraction problems.	• Addend • Addition strategies • Sum	• Calendar Math area • Student book and pencil

LESSON PREPARATION
No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In Chapter 1, students learned several mental math strategies for adding numbers. In today's lesson, you introduce the Commutative Property of Addition to help students understand that they can add numbers in any order. Students do not need to know the name of the property, but should understand the essence of it. They will practice applying this property to find sums.

1.TEACHER SAY: We have learned so many mental math strategies to help us add numbers together. Let's review our list together.

 **STUDENTS DO:** Review Mental Math Strategies poster with the teacher.

TEACHER SAY: Great work. Today we are going to use these strategies to learn a new property of addition. Let's start with some easier numbers.

2.TEACHER DO: Write 4 + 5 on the board.

TEACHER SAY: Turn to your Shoulder Partner and tell each other what you think is the answer to this addition problem. When you share your answer, tell your partner the mental math strategy you used to solve it.

TEACHER DO: Give partners about 30 seconds to solve and discuss, and then use an **Attention Getting Signal** to bring the group back together. Call on students to answer the problem and share the mental math strategies they used to solve.

 **STUDENTS DO:** Selected students share the mental math strategies they used.

TEACHER SAY: Fantastic. _____ (Student's name) used the _____ (name of mental math strategy) to get the sum of 9. Let's see what happens when we switch the addends, or the two numbers we are adding, around.

TEACHER DO: Write 5 + 4 on the board.

TEACHER SAY: Think for a moment: When we add these numbers together, what will be the sum? How are these two problems different? How are they alike? Discuss this with your Shoulder Partner.

 **STUDENTS DO:** Turn and discuss their thinking with their **Shoulder Partner**.

TEACHER DO: Call on a few pairs of students to share the answer and discuss their thoughts.

 **STUDENTS DO:** Selected partners share the answer and discuss their thinking.

3.TEACHER SAY: I wonder if this works when we add larger numbers together. Let's try this one together.

TEACHER DO: Write 12 + 7 = _____ on the board.

TEACHER SAY: We learned that it is easier to start with the larger addend when adding in our heads, so let's start with 12 and count on. Count on with me.

TEACHER DO: **Model** counting on to solve 12 + 7 by starting at 12 and then counting on 7 more (to 19).

 **STUDENTS DO:** Count aloud with the teacher.

TEACHER DO: Write the answer on the board (12 + 7 = 19).

TEACHER SAY: So, 12 + 7 = 19. What if we switch the addends around? Will we get the same answer?

TEACHER DO: Write 7 + 12 = _____ on the board.

TEACHER SAY: Let's use the 120 Chart to add 7 and 12. Help me count on.

TEACHER DO: Using the 120 Chart, start at 7 and count on 12 spaces to 19.

 **STUDENTS DO:** Count aloud with the teacher.

TEACHER DO: Write the answer on the board (7 + 12 = 19).

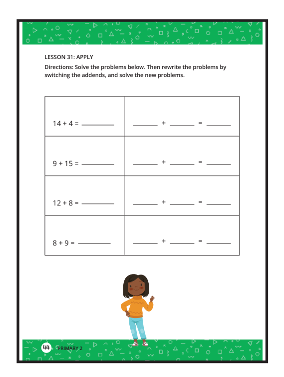
TEACHER SAY: Did we get the same answer?

 **STUDENTS DO:** Respond together.

TEACHER SAY: What does that tell us about addition problems? Does the order of the addends in an addition problem matter? Turn and Talk to your Shoulder Partner and share your thinking. When you are ready to share your thinking with the class, give me a Thumbs Up.

 **STUDENTS DO:** **Turn and Talk** to **Shoulder Partner** to share their thinking about the order of addends. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER DO: Listen to students' answers. If no students share that the order of the addends in an addition problem does not matter or that you will get the same answer if the addends are switched, explain the concept to students. Use additional examples to build understanding. When students are ready, provide time for them to practice the concept.



LESSON 31: APPLY

Directions: Solve the problems below. Then rewrite the problems by switching the addends, and solve the new problems.

14 + 4 = ___	___ + ___ = ___
9 + 15 = ___	___ + ___ = ___
12 + 8 = ___	___ + ___ = ___
8 + 9 = ___	___ + ___ = ___

4. TEACHER SAY: **Let's try a few of these in our student book. Please take out your book and turn to page Lesson 31: Apply.**



STUDENTS DO: Take out student book and turn to page Lesson 31: Apply.

TEACHER SAY: **On this page, you will see several addition problems. You will solve the problem on the left side. Then you will rewrite the problem by switching the addends on the right side. Then you will solve the new problem.**

TEACHER DO: If students need additional support, do the first Apply problem together. Walk around the room and monitor students' work, offering help as needed. Ask students which mental math strategy or strategies they used to solve the problems.



Reflect (5 minutes)

Directions

1. TEACHER SAY: **Today we discovered something about addition problems. We learned that we can put addends in any order and we will still get the same sum. I wonder if the same is true for subtraction. Knowing what you know about addition and subtraction, Turn and Talk to your Shoulder Partner. Discuss whether or not you think the order of the numbers matters in a subtraction problem. I will give you a problem to think and talk about. I'm going to give you about one minute, but give me a Thumbs Up when you are ready to share.**

TEACHER DO: Write 15 – 10 = _____ on the board.



STUDENTS DO: Share their thinking with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their thinking with the whole group.

TEACHER DO: Listen to students' ideas. If no students correctly respond to the question, write the subtraction problem with the numbers switched. Then try to solve the new problem using the 120 Chart. Students should see that in a subtraction problem, the order of the numbers matters.

TEACHER SAY: **Great thinking. Although the order of the addends in an addition problem does NOT matter, the order of the numbers in a subtraction problem DOES matter. We will talk more about this again.**

Lesson 32 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Apply mental math strategies to solve addition and subtraction problems.

KEY VOCABULARY

- Addend
- Difference
- Sum

MATERIALS

- Calendar Math area
- Dice (one die per group of 5 students)
- Sets of number cards 1 to 9 (one set for each group of 5 students)
- Student book and pencil

LESSON PREPARATION

Gather dice for the class (one die per group of 5 students).

Create a set of number cards 1 to 9 (one set for each group of 5 students).



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students apply mental math strategies to add and subtract problems involving a 2-digit number and a 1-digit number. Students play a game to reinforce these skills where they create numbers and add or subtract to solve the problem.

1.TEACHER SAY: Today we are going to play a game that will help us review some of the things that we have been learning. You will play in groups, but first I will teach you how to play the game. Open your student book to page Lesson 32: Apply.

STUDENTS DO: Open student book to page Lesson 32: Apply.

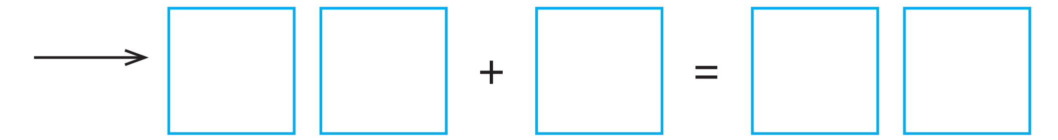
TEACHER DO: Display die and number cards 1 to 9.

TEACHER SAY: I have a die with numbers 1 to 6 on it and a set of number cards 1 to 9. We will use these math tools to create numbers to add and subtract.

TEACHER DO: Draw the problem on the board as it is shown in the student book.

TEACHER SAY: First, I will roll the die. That number will go in the first box.

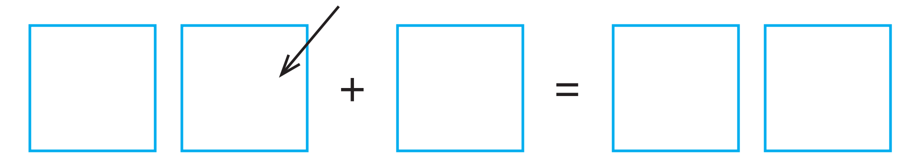
TEACHER DO: Roll the die and share the number with the students. Write the number rolled in the first box. Have students write the number in the first box in the student book.



STUDENTS DO: Write the number in the first box in the student book.

TEACHER SAY: **I roll the die again. That number will go in the second box.**

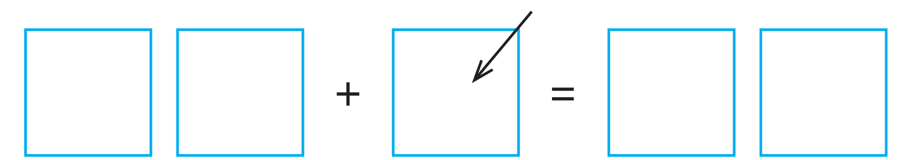
TEACHER DO: Roll the die and s/hare the number with the students. Write the number rolled in the second box. Have students write the number in the second box in the student book.



STUDENTS DO: Write the number in the second box in the student book.

TEACHER SAY: **Now we have our first addend, _____. To find the next addend, I will draw a card from the stack.**

TEACHER DO: Draw a number from the stack and write it in the third box.



TEACHER SAY: **Now we have our addition problem. Let's solve it together using a mental math strategy. Let's use the strategy Counting On to find the sum of _____ + _____ . We will start with the larger number and count on. Count with me.**

STUDENTS DO: Count on aloud with the teacher.

TEACHER DO: Record the sum on the board. Have students record the sum in the student book.

STUDENTS DO: Record the answer in the student book.

TEACHER SAY: **Let's read the full problem together: _____ + _____ = _____.**

STUDENTS DO: Read aloud the completed problem.

2.TEACHER DO: Help students **Count Off** to form groups of 5.

TEACHER SAY: **Move with your group to a place you can play the game together. Take turns rolling and picking number cards. Be sure everyone in your group writes the problems in the student book. Solve as many problems as you can in the next 5 minutes.**

STUDENTS DO: Move to work together. Work in groups to create and solve the addition problems.

TEACHER DO: Walk around the room and assist as needed. After about 5 minutes, have students return to their seats.

3.TEACHER SAY: **You have done a great job with addition. Now let's try some subtraction problems. We will follow the same process, but this time, we will subtract the numbers. Let's practice one together.**

TEACHER DO: Model how to roll the die to get the first two digits, then pick a card to get the third digit. Write all of the numbers on the board as you go. Have students copy the numbers into the student book.

TEACHER SAY: Let's use a different mental math strategy to subtract. We will use Counting Back to find the difference.

TEACHER DO: Model how to use Counting Back to solve the subtraction problem. Record the answer on the board. Have students write the answer in the student book. Answer questions if needed.



STUDENTS DO: Write the answer in the student book.

TEACHER SAY: Move with your group back to where you were playing the game. Take turns rolling and picking number cards. Be sure everyone in your group writes the problems in your student books. Solve as many problems as you can in the next 5 minutes.



STUDENTS DO: Move to work together. Work in groups to create and solve the subtraction problems.

TEACHER DO: Walk around the room and assist as needed. After about 5 minutes, have students return to their seats.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Turn to page Lesson 32: Math Journal in your student book.**



STUDENTS DO: Open the student book to page Lesson 32: Math Journal.

TEACHER SAY: Think for a moment about the math work we did today. How did you use mental math strategies to solve the problems? How did you help each other solve the problems? Write or draw your thinking on the Math Journal page.



STUDENTS DO: Write or draw a picture in the student books to answer the Reflect questions.

TEACHER DO: Walk around the room and view students' responses. Note students who made good observations about using mental math strategies or working with others to solve problems. If time allows, have a few students share their thinking with the class.



STUDENTS DO: Selected students share their thinking.

TEACHER SAY: Thank you for sharing your thinking. When we share our thinking, we learn from each other.

Lesson 33 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Decompose 2-digit numbers into Tens and Ones.

KEY VOCABULARY

- Decomposing
- Ones
- Tens

MATERIALS

- Calendar Math area
- Sets of materials to **Model** Tens and Ones (one set for the teacher)
- Optional: One set per small group of students
- Student book and pencil

LESSON PREPARATION

Gather materials that you can use to **Model** Tens and Ones and demonstrate decomposing numbers. See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.**TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students focus on breaking apart 2-digit numbers into Tens and Ones. Decomposing is one of the key components of computational thinking. After today's lesson, students should be able to explain why it is important to break down addition problems to make them easier to solve. They do not solve any problems today, but work to master the decomposition of numbers to help them solve more complex addition and subtraction problems.

1.**TEACHER SAY: Today we are going to become masters at decomposing numbers. Say DECOMPOSING with me.**

 **STUDENTS DO:** Say: decomposing.

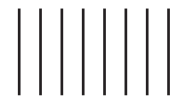
TEACHER SAY: Decomposing is a big word that means to take apart or break down. We use decomposing in many different areas of life. Every day, we decompose processes to help make life easier for us. For example, think of a recipe for making _____ (name of popular local food). The recipe breaks the cooking process down into small chunks to make it easier to make the _____. We can do that with math problems too.

2.TEACHER SAY: Let's take a look at the number 84. There are a couple of ways we can decompose this number. The first way is by drawing it as Tens and Ones. Let's use sticks for the Tens and dots for the Ones. Show me on your hands how many Tens there are in the number 84.



STUDENTS DO: Show 8 fingers on their hands for the number of Tens.

TEACHER DO: Draw 8 sticks on the board to show 8 Tens.



TEACHER SAY: Great. How many Ones are in the number 84? Show me on your hands.



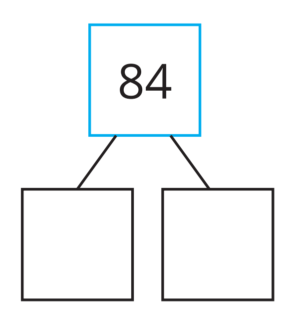
STUDENTS DO: Show 4 fingers on their hands for the number of Ones.

TEACHER DO: Draw 4 dots on the board to show 4 Ones. Read the number aloud again, pointing to each place value representation.



TEACHER SAY: Another way we can decompose 84 is by separating the Tens and Ones into boxes. Let me show you on the board.

TEACHER DO: Write the following on the board.



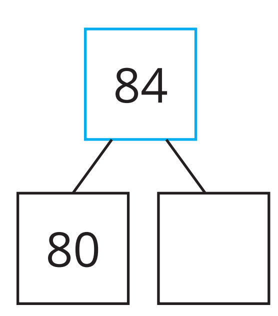
TEACHER SAY: Let's put the Tens in the first box. There is an 8 in the Tens place. Raise your hand if you know the place value of the 8.



STUDENTS DO: Raise hands to volunteer. Selected students share their answers.

TEACHER SAY: Yes, an 8 in the Tens place has a value of 80, so we will write 80 in the first box.

TEACHER DO: Write 80 in the first box.



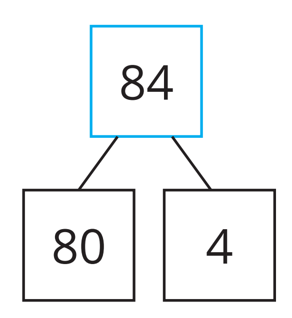
TEACHER SAY: I also see there are 4 Ones in the number 84. Raise your hand if you know the place value of the 4.



STUDENTS DO: Raise hands to volunteer. Selected students share their answers.

TEACHER SAY: Yes, a 4 in the Ones place has a value of 4, so we will write 4 in the second box.

TEACHER DO: Write 4 in the second box.



3. **TEACHER SAY:** **Now we can see that 84 is the same as saying 80 and 4 or 80 + 4. When we add 2 two-digit numbers together, decomposing numbers like this is very helpful. Let's practice some more with a partner. I would like you to find a partner using Hands Up, Pair Up.**

 **STUDENTS DO:** Find partners using **Hands Up, Pair Up**.

TEACHER SAY: **Take out your student book and open it to page Lesson 33: Apply.**

 **STUDENTS DO:** Turn to page Lesson 33: Apply in the student book.

TEACHER SAY: **There are 2-digit numbers on the page. Work with your Shoulder Partner to solve problems 1 through 3. For each problem, decompose the 2-digit number using both of the strategies we discussed today.**

 **STUDENTS DO:** Work with partner to decompose each 2-digit number using both strategies.

TEACHER DO: Walk around to observe students as they work. Offer assistance as needed. Note which students may need additional instruction or support. If students finish early, have them complete additional problems. At the end of the Learn segment, use an **Attention Getting Signal** and prepare students for Reflect.



Reflect (5 minutes)

Directions

1. **TEACHER SAY:** **For Reflect today, Turn and Talk to your Shoulder Partner. Share your work in the student book and tell your partner which way you prefer to decompose numbers. Which one helps you better understand and work with numbers?**

 **STUDENTS DO:** Share their thinking with their **Shoulder Partner**.

TEACHER DO: Allow time for students to discuss. Listen to students' conversations.

TEACHER SAY: **You all did a wonderful job decomposing numbers today. I want you to give your partner a high five.**

 **STUDENTS DO:** Give their partners a high five.

Lesson 34 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Add two 2-digit numbers without regrouping. • Decompose 2-digit numbers to solve addition story problems.	• Decomposing • Ones • Tens	• Calendar Math area • Student book and pencil

LESSON PREPARATION
No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

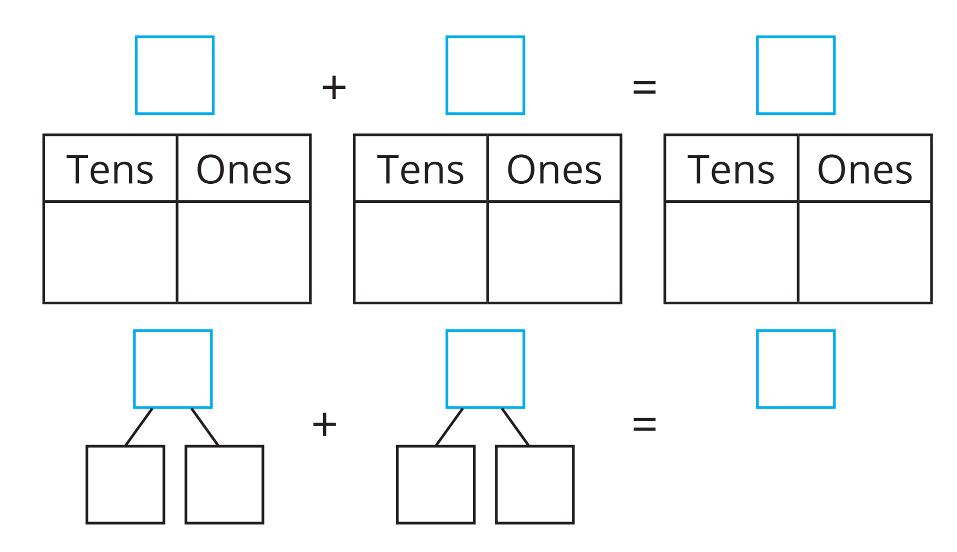


Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students use the decomposing strategies they learned in Lesson 33 to solve addition problems with two 2-digit numbers, without regrouping.

1.TEACHER DO: Before the lesson, write the following on the board:



TEACHER SAY: In our last math lesson, we learned how to decompose numbers. Today, we are going to decompose to solve some story problems. We will do one together and then you will solve some on your own. Raise your hand if you remember what it means to decompose numbers.

 **STUDENTS DO:** Raise hands if they remember the meaning of decompose. Selected students share their thinking.

TEACHER DO: Confirm or correct students' thinking.

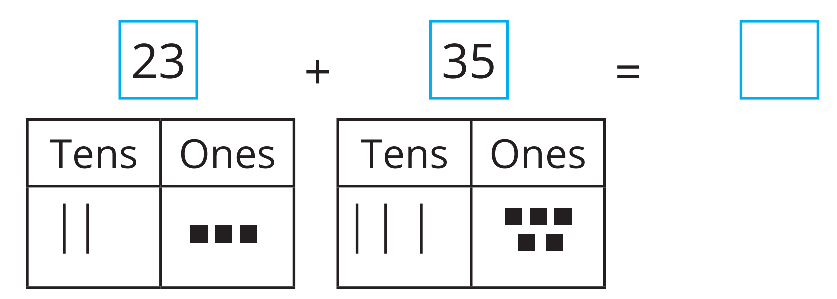
TEACHER SAY: Here is our first story problem. Hassan bought 23 chocolate cookies from the bakery. He also bought 35 vanilla cookies. How many cookies does Hassan have in all?

First, we will write the numbers in an addition sentence. Second, we will decompose the numbers in two ways. Third, we will add the numbers together.

TEACHER DO: Write the numbers in the addition sentence from the story problem on the board: 23 + 35 = ____.

TEACHER SAY: I wrote the addition sentence. Now we will decompose the two addends. Yesterday we learned two different ways to decompose our numbers. Let's use the sticks and dots method first.

TEACHER DO: Model drawing 2 sticks for the Tens and 3 dots for the Ones for the number 23 and 3 sticks and 5 dots for the number 35 on the board. Ask students to help you.



 **STUDENTS DO:** Help the teacher determine what to write in the place value chart.

2.TEACHER SAY: Now let's solve the problem. To solve the problem using this method, we add the Tens sticks together and draw them all in the Tens place under the sum. Help me figure out what to draw.

TEACHER DO: If necessary, ask students questions to help them think through how to add the Tens sticks together and draw them on the chart. Encourage students to show you using their fingers. If possible, invite volunteers to the board to draw the Tens sticks.

 **STUDENTS DO:** Help the teacher determine how many Tens sticks to draw. Selected students draw Tens sticks on the board.

TEACHER SAY: We have 5 Tens all together. Let's do the same thing with the Ones.

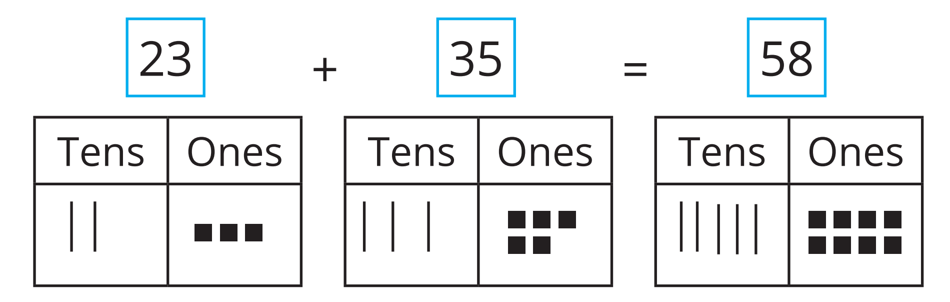
TEACHER DO: Repeat the process with the Ones dots.

 **STUDENTS DO:** Help the teacher determine how many Ones dots to draw. Selected students draw Ones dots on the board.

TEACHER SAY: Yes, there are 8 Ones all together. Our sum has 5 Tens and 8 Ones. Read the number aloud with me.

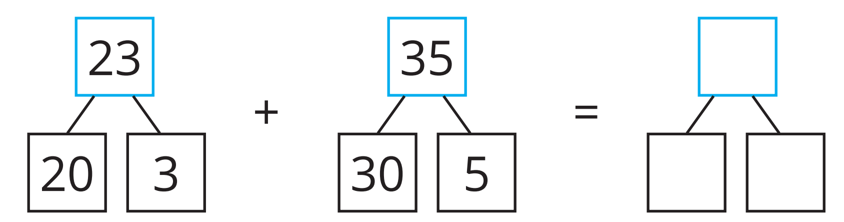
 **STUDENTS DO:** Say together: 58.

TEACHER DO: Draw the Tens and Ones on the chart under the sum. The completed problem should look like this:



3. TEACHER SAY: We can also use our Tens and Ones boxes to help us decompose. Watch as I Model this strategy.

TEACHER DO: Model using the Tens and Ones boxes to decompose the numbers 23 and 35. Ask students to help you.



STUDENTS DO: Help the teacher determine what to write in the Tens and Ones boxes.

TEACHER DO: Write 20 + 30 on the board.

TEACHER SAY: When we add 20 and 30 together, we can count on by adding Tens. We start at 30 and count up two more Tens—40, 50. 20 plus 30 is 50.

TEACHER DO: Write 50 in the Tens box.

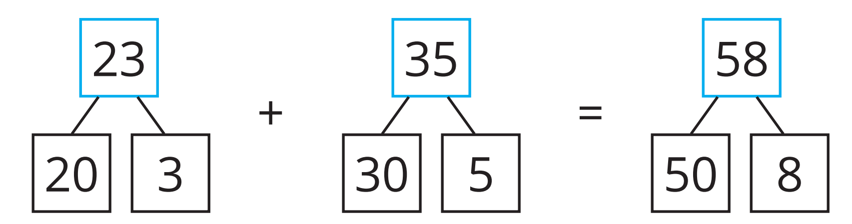
TEACHER SAY: We also have to add the Ones: 3 + 5. Show me on your hands what 3 + 5 is.



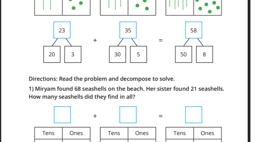
STUDENTS DO: Show the sum of 3 + 5 on their hands.

TEACHER SAY: Yes, 8. The answer has 5 Tens and 8 Ones. The sum is 58.

TEACHER DO: Complete the problem on the board. Completed problem should look like this:



4. TEACHER SAY: Hassan has 58 cookies all together. Wow. That was a lot of work. But you can see how decomposing the numbers into smaller numbers makes it easier to add the numbers together. If we did not decompose the numbers, we would have had to start at 35 (the bigger number) and count on 23, which would take a long time and we may make mistakes. Decomposing numbers is a great way to add large numbers together.



Now it is time for you to try this with your Shoulder Partner. Take out your student book and turn to page Lesson 34: Apply.

STUDENTS DO: Turn to page Lesson 34: Apply in the student books.

TEACHER SAY: In your student book, you will see the story problem we just solved and three more story problems. I will read each story problem aloud. For each problem, there is a Tens–Ones chart and Tens–Ones boxes. Work with your Shoulder Partner to decompose the problems

both ways and find the sums. Be sure to show your work. Put your finger on the first story problem and read it aloud with me: Miryam found 68 seashells on the beach. Her sister found 21 seashells. How many seashells did they find in all?

TEACHER DO: Depending on your students, read only the first story problem or all three.

TEACHER SAY: **First, write down the numbers from the problem. Then you may begin decomposing and adding.**



STUDENTS DO: Work with their **Shoulder Partner** to decompose the numbers and add them together in the student books.

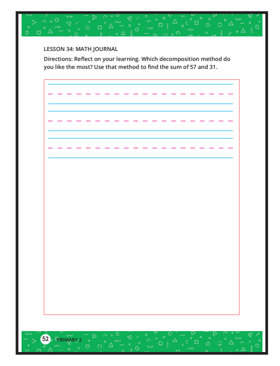
TEACHER DO: Walk around the classroom to assist students as needed. Allow time for students to solve and check their work. Take note of students who may need additional instruction and support. If time allows, call a student to the front to share their work. Repeat with the other story problems in the student book.

TEACHER SAY: **That was great work, class. I admire how hard you worked on those problems.**



Reflect (5 minutes)

Directions



LESSON 34: MATH JOURNAL

Directions: Reflect on your learning. Which decomposition method do you like the most? Use that method to find the sum of 57 and 31.

1. **TEACHER SAY:** **Turn to page Lesson 34: Math Journal in your student book. I am going to write a 2-digit math problem on the board. Pick one method for decomposing— either the Tens sticks and Ones dots method or the Tens–Ones boxes. Solve the problem using the method you like the most.**

TEACHER DO: Write 57 + 31 on the board.



STUDENTS DO: Decompose and solve the problem using the strategy they like the most.

TEACHER DO: If time allows, select a few students to share their favorite decomposing strategy with the class.

Lesson 35 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Subtract 2-digit numbers without regrouping. • Decompose 2-digit numbers to solve subtraction story problems.	• Decomposing • Difference • Ones • Subtract • Tens	• Calendar Math area • Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

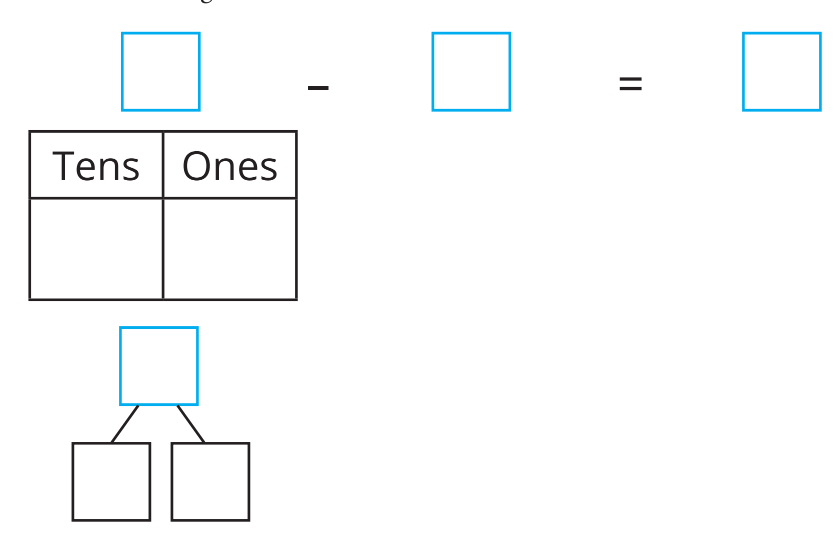
Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students apply the decomposing strategies they have learned to solve 2 two-digit subtraction story problems without regrouping.

1. **TEACHER SAY: Yesterday we decomposed numbers to solve addition story problems. Today we are going to use the same strategy to solve subtraction story problems. We will do one together, and then you will work with a partner to solve some on your own.**

TEACHER DO: Write a blank subtraction sentence on the board, along with a Tens–Ones chart and a Tens–Ones boxes diagram.

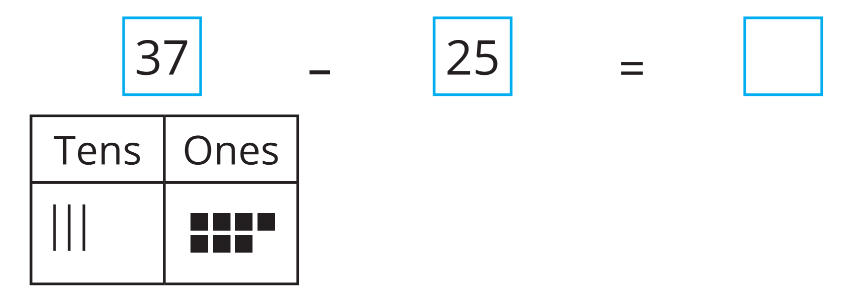


TEACHER SAY: Here is our first story problem. Sabra made 37 falafel balls with his mother. For dinner that night, they ate 25 falafel balls. How many falafel balls were left? Let's write a math sentence for that story problem. What is the first number we should write? Why?

TEACHER DO: Use **Calling Sticks** to select students to help. If students are not sure, remind them that the biggest number goes first in subtraction problems and that Sabra and his mother started with 37 falafel balls. Ask a student to help you write the sentence 37 – 25 = ___ on the board.

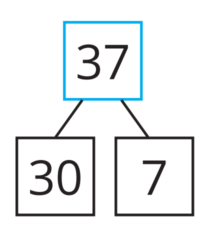
TEACHER SAY: When we subtract, we do not actually need to decompose both numbers. We can decompose the bigger number, then take some away from that number to find the difference. I will show you what that looks like.

TEACHER DO: **Model** using the Tens sticks and Ones dots to decompose the number 37. Have students help you, if possible. Draw 3 Tens sticks and 7 Ones dots, then remove or cross out 2 Tens sticks and 5 Ones dots. Make sure students understand you are subtracting the Tens and Ones in the second number.



TEACHER SAY: We can also use our Tens and Ones boxes to help us decompose. Watch as I Model this strategy.

TEACHER DO: **Model** how to use the Tens and Ones boxes to decompose 37. Have students help you, if possible.



TEACHER SAY: To solve the subtraction problem using the Tens and Ones boxes, we subtract the Tens and then we subtract the Ones. We have 3 Tens, or 30. We need to subtract 2 Tens, or 20. Give me a Thumbs Up if you know the answer to 30 – 20.

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students answer the question.

TEACHER DO: Confirm the correct answer if offered by a student. Then write 30 – 20 on the board and **Model** how to mentally subtract tens.

TEACHER SAY: When we subtract 20 from 30, we can count back by tens. If we start at 30 and count back 2 tens—30, 20, 10—we get 10.

TEACHER DO: Draw another set of Tens and Ones boxes under the answer blank. Write 10 in the Tens box.

TEACHER SAY: We also have to subtract Ones: 7 – 5. Show me on your hands what 7 – 5 is.

 **STUDENTS DO:** Show the difference on their hands.

TEACHER SAY: Yes, 7 – 5 is 2.

TEACHER DO: Write 2 in the Ones box under the answer blank.

TEACHER SAY: Look at the Tens and Ones boxes for the answer. It has 1 Ten and 2 Ones, so the difference is 12. Twelve falafel balls were left. Yum.

TEACHER DO: Complete the problem on the board. Completed problem should look like this:

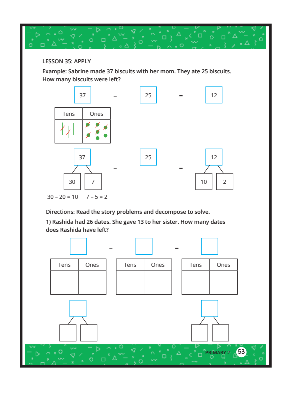
37 – 25 = 12

30 | 7   10 | 2

$30 - 20 = \mathbf{10}$ $7 - 5 = \mathbf{2}$ $10 + 2 = 12$

2. TEACHER SAY: I am wondering what questions you have about doing subtraction story problems before you try some on your own.

 **STUDENTS DO:** Ask questions if they have any.



TEACHER DO: Answer students' questions or allow students to respond to and help each other.

TEACHER SAY: Now it is time for you to try a subtraction story problem on your own. You will work at your desk with your Shoulder Partner. Take out your student book and turn to page Lesson 35: Apply.

 **STUDENTS DO:** Turn to page Lesson 35: Apply in the student books.

TEACHER SAY: In your student book, you will see the story problem we just solved and three more story problems. I will read each story problem aloud. For each problem, there is a

Tens–Ones chart and Tens–Ones boxes. Work with your Shoulder Partner to decompose the problems both ways and find the differences. Be sure to show your work.

Put your finger on the first story problem and read it with me as I read it aloud. Rashida had 26 dates. She gave 13 to her sister. How many dates does Rashida have left?

TEACHER DO: Depending on your students, read only the first story problem or all three.

TEACHER SAY: First, write down the numbers from the problem. Then you may begin decomposing and subtracting.

 **STUDENTS DO:** Work with their **Shoulder Partner** to decompose numbers and solve the subtraction story problems in the student books.

TEACHER DO: Walk around the classroom to assist students as needed. Allow time for students to solve and check their work. Take note of students who may need additional instruction and support. If time allows, call a student to the front to share their work. Repeat with the other story problems in the student book.

TEACHER SAY: That was great work, class. I appreciate it when you work together to solve problems and help each other.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: Turn to page Lesson 35: Math Journal in your student book.**

 **STUDENTS DO:** Turn to page Lesson 35: Math Journal in the student book.

TEACHER SAY: Now you get a chance to be creative and write some of your own story problems. Remember, story problems use numbers to tell a story, and there is always a problem to solve. Try to write one addition story problem and one subtraction story problem. Maybe we will get to solve some of your story problems together later.

 **STUDENTS DO:** Write their own story problems.

TEACHER DO: Give students a few minutes to write and monitor who writes accurately. If students are unable to finish, allow them to finish during a free moment or for homework. If time permits, allow a few students to share their word problems.

TEACHER SAY: I am so impressed with your ideas. I cannot wait to have you solve some of the problems you wrote. Please put away your student book.

 **STUDENTS DO:** Put away the student book.

Note to the Teacher: Collect students' student books and review the story problems they wrote during Reflect. If possible, select several student-written problems that could be used for practice in Lesson 36.

Lesson 36 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Use place value to estimate sums and differences. • Solve 2-digit addition and subtraction problems without regrouping.	• Difference • Estimate • Estimation • Place value • Strategy • Sum	• Calendar Math area • Student book and pencil

PREPARATION
No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.**TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students practice estimating to find sums and differences. Yesterday in Reflect, students wrote their own addition and subtraction word problems. If possible, select some of those problems to use during today's lesson. Students always feel empowered when they see their work used as an example.

1.**TEACHER SAY:** **You have done some great work during the past few days adding and subtracting 2-digit numbers. We have used mental math strategies, place value, and decomposing. Today we are going to learn about another strategy: ESTIMATION. Does anyone want to take a guess about what it means to ESTIMATE?**

 **STUDENTS DO:** Raise hands and share predictions about what it means to estimate.

TEACHER SAY: **You made some great guesses. When we estimate, we think about the numbers in the problem and what numbers are close to those numbers and easier to work with. For example, let's think about the number 18. That number can be hard to work with, so I am going to see if there is a number close to 18 that would be easier to work with.**

TEACHER DO: **Model** looking at the 120 Chart to find a number close to 18.

TEACHER SAY: **20 is close to 18 and it is much easier to add and subtract than 18. It does not give me the exact right answer, but it helps me make a prediction about the answer. You help**

me do one. Think about the number 32. What number is close to 32 and is easier to add and subtract? Give me a Thumbs Up when you have an idea.

 **STUDENTS DO:** Think about 32 and/or look at the 120 Chart. Give a **Thumbs Up** to volunteer. Selected students share their thinking.

TEACHER DO: Confirm students' answers, if correct. **Model** looking at the 120 Chart to identify 30 as a number that is close to 32 and easier to work with or have students demonstrate how they did it.

TEACHER SAY: Let's practice estimating with a fun game. I am going to make some estimates about answers to some math problems. If you think my estimate is a good guess, you will stand up. If you think my estimate is silly, make a silly face.

TEACHER DO: Post a few problems like the ones below on the board. Use students' word problems from Reflect yesterday if possible. Do not write your estimate, but after you read each problem, share a silly estimate (examples below). Allow time for students to stand up or make a silly face. Ask one or two students to share why they think your estimate is close or silly after each problem. Examples:

- 16 + 20 = ______. My estimate is 94.
  - This estimate is silly because if I look at the 120 Chart, I see that 16 is close to 20, so the answer to this problem would be much closer to 20 + 20, or 40. 90 is much too high.
- Reem made 27 beaded necklaces but her friends loved them so much, she made 32 more. How many beaded necklaces did she make all together? My estimate is 60.
  - This estimate is close because 27 is close to 30 and 32 is close to 30. 30 + 30 is 60.
- 68 – 20 = ____. My estimate is 81.
  - This estimate is silly because when we subtract, the difference will be less than the biggest number. This could be a good estimate for an addition problem, but it is a silly estimate for this subtraction problem.

2. TEACHER SAY: You did some great mathematical thinking about whether my estimates were close or silly. When we estimate, we can try a few strategies. We can use the 120 Chart strategy we used before. We can also use a place value strategy. When we use this strategy, we work only with the digits in the highest place value. Let's try this strategy together.

TEACHER DO: Write at least two problems on the board like the examples below. Use students' story problems from Lesson 35 Reflect, if possible. Use the following problem as an example, if needed (otherwise substitute the numbers below for the numbers in the problem you are using): Write 52 + 34 = ____ on the board.

TEACHER SAY: To use the place value strategy, first I circle the digits in the highest place value. In 2-digit numbers, the highest place is the Tens place, so I circle the 5 for 50 in the first number and 3 for 30 in the second number.

TEACHER DO: Circle the 5 in 50 and the 3 in 30.

TEACHER SAY: I also circle the addition sign because that tells me what to do with these numbers.

TEACHER DO: Circle the addition sign.

TEACHER SAY: I can use mental math to add 50 and 30. The answer is 80, so my estimate for the answer to 52 + 34 is 80. Let's look at another example together.

Ali bought 28 loaves of bread for his family. They ate 17 loaves. How many did they have left over? To use the place value strategy, first I will write this story problem with just numbers.

TEACHER DO: Write 28 – 17 = ____ on the board. Discuss the order of the numbers in the problem, if necessary.

TEACHER SAY: **Now I circle the digits in the Tens place for each number, so I circle 2 for 20 and 1 for 10. I also circle the subtraction sign to remind me to subtract.**

TEACHER DO: Circle the 2 in 28, the 1 in 17, and the subtraction sign.

TEACHER SAY: **Now I can use mental math and figure out that 20 – 10 is 10, so I estimate the answer to 28 – 17 should be close to 10. What questions do you have about using the place value strategy to estimate?**

 **STUDENTS DO:** Ask questions about estimation, if necessary.

TEACHER DO: Answer students' questions, if any.

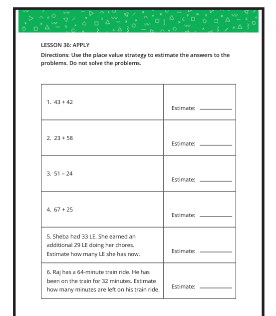
TEACHER SAY: **Turn to your Shoulder Partner and explain how to use place value to estimate.**

 **STUDENTS DO:** Talk to their **Shoulder Partner** about how to use place value to estimate.

TEACHER DO: Listen as students talk, supporting conversations as needed. Identify a few students to share their ideas.

TEACHER SAY: **I will call on a few of you now to share what you and your Shoulder Partner discussed.**

 **STUDENTS DO:** Selected students share their explanations in their own words.



LESSON 36: APPLY

Directions: Use the place value strategy to estimate the answers to the problems. Do not solve the problems.

1. 43 + 42	Estimate: ______
2. 23 + 58	Estimate: ______
3. 51 – 24	Estimate: ______
4. 67 + 25	Estimate: ______
5. Sheba had 33 LE. She earned an additional 29 LE doing her chores. Estimate how many LE she has now.	Estimate: ______
6. Raj has a 64-minute train ride. He has been on the train for 32 minutes. Estimate how many minutes are left on his train ride.	Estimate: ______

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3.TEACHER SAY: **You have got it. When we use the place value strategy for estimation, we simply add or subtract the digit in the highest place value. For us, that is the Tens place. That often gives us a good estimate of the answer. You and your Shoulder Partner will now get a chance to practice this together. Please open your student book to page Lesson 36: Apply.**

 **STUDENTS DO:** Open the student book to page Lesson 36: Apply.

TEACHER SAY: **I want to remind you not to SOLVE these problems. You are going to circle three things: the digit in the Tens place in the first number, the digit in the Tens place in the second number, and the addition or subtraction sign. Then calculate your estimate. There are also two story problems on the page. Write the number sentence, circle the numbers in the Tens place, and calculate your estimate.**

TEACHER DO: If necessary, read the story problems aloud to students.

 **STUDENTS DO:** Take out the student book and work with a **Shoulder Partner**. Each student should complete the problems in their own book, but work with their **Shoulder Partner** for support if needed.

TEACHER DO: As students work, circulate around the room to answer any questions. Note which students may need additional instruction or support. Remind students to circle the digits and the sign and then estimate. If students are solving the problems, remind them to estimate. As Learn time comes to an end, use an **Attention Getting Signal** to bring the class back together.

3.TEACHER SAY: **You and your partner worked really well together using the place value strategy for estimation. Let's go over our work together now. I will use the Calling Sticks for each problem to choose one student to share their estimate. If you estimated something different, please raise your hand.**

 **STUDENTS DO:** Selected students share their estimates.

TEACHER DO: If other students estimated something different, have them share their estimates. Discuss which estimate was more reasonable or ask the class to debate which one is more reasonable based on what they know about place value.



Reflect (5 minutes)

Directions

1. **TEACHER SAY:** **Think for a moment. Why does it help me to be able to estimate the answer to a problem? For example, how does it help me to know the answer to 52 + 34 is close to 80? Give me a Thumbs Up when you have an idea.**



STUDENTS DO: Think for a moment. Give a **Thumbs Up** to volunteer. Selected students share their thinking.

TEACHER DO: Summarize students' thinking. If no students mention it, explain that having an estimate of the answer can help them see if their real answer is reasonable. For example, if they estimate the answer should be close to 80, but their answer is 65, that should tell them they may have done something wrong.

Lesson 37 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Use place value to estimate sums. • Decompose 2-digit numbers to solve addition problems.	• Decomposing • Estimate • Estimation • Place value	• Calendar Math area • Student book and pencil

LESSON PREPARATION
No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.

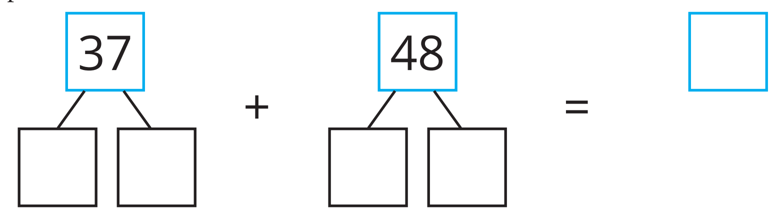


Learn (40 minutes)

Directions

Note to the Teacher: Students have been working on adding 2-digit numbers by decomposing numbers into Tens and Ones without regrouping. In today's lesson, students begin to think about how to solve problems when they have more than 9 Ones in the Ones place (though they will not learn regrouping in this lesson). This is a direct link to the Calendar Math, where they have practiced regrouping 10 Ones to make 1 Ten.

1.TEACHER DO: Write the following problem on the board with lines below and boxes to decompose, like in previous lessons.



TEACHER SAY: Yesterday we practiced estimating. We have also been practicing decomposing 2-digit numbers into Tens and Ones. Today we will estimate the sum, and then we will break apart the 2-digit numbers to think about what might happen if we have too many Ones in the Ones place. Does anyone think they know what happens if we have too many Ones in the Ones place? Raise your hand.

 **STUDENTS DO:** Raise hands to volunteer. Selected students share their thinking.

TEACHER DO: If any students mention the correct strategy, take note. Otherwise, thank students for sharing their ideas and direct their attention to the problem on the board. Read the problem aloud.

TEACHER SAY: Let's use place value to estimate the sum. I am going to need helpers.

TEACHER DO: Use **Calling Sticks** to select a student to help you estimate the sum using place value.



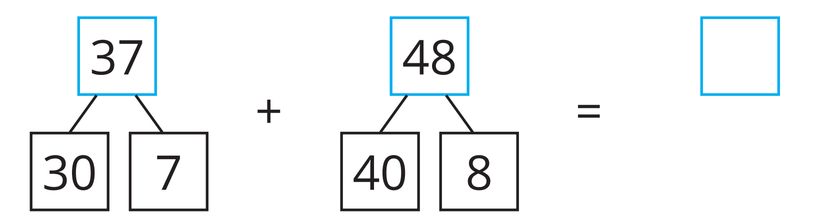
STUDENTS DO: Selected student circles the digits in the Tens place, circles the addition sign, and provides an estimated sum (70).

TEACHER SAY: Thank you for estimating. Now I need a helper to decompose the addends into Tens and Ones.

TEACHER DO: Use **Calling Sticks** to select a student to decompose the addends into Tens and Ones.

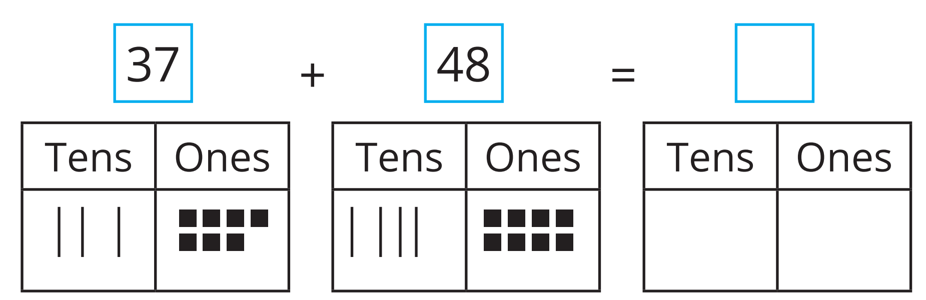


STUDENTS DO: Selected student decomposes both addends into Tens and Ones.



TEACHER SAY: Good job. 37 has 3 Tens and 7 Ones. 48 has 4 Tens and 8 Ones. I am also going to draw a place value picture below the boxes to help us look at this problem in a different way. I will use sticks to represent Tens and dots to represent Ones.

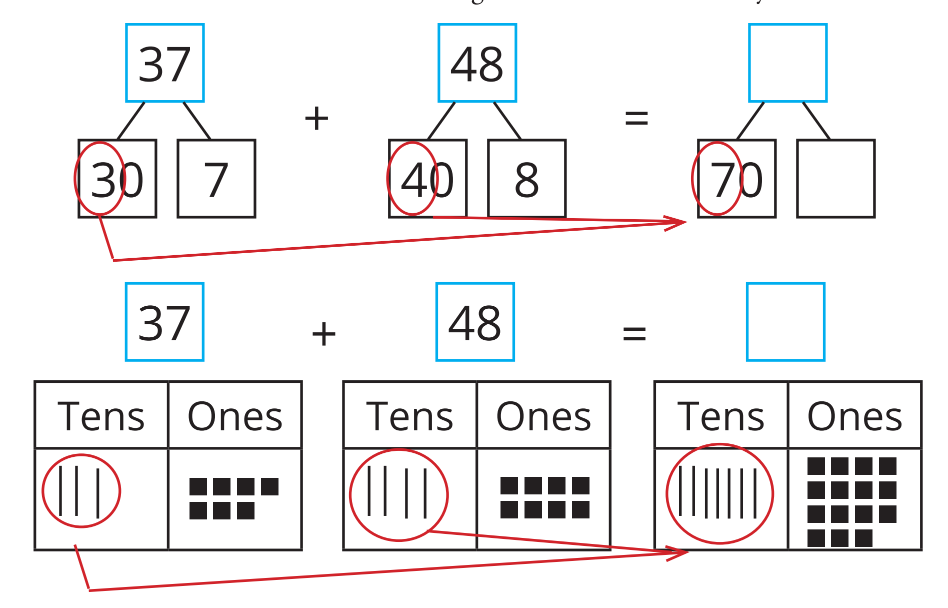
TEACHER DO: Draw Tens sticks and Ones dots for the numbers.



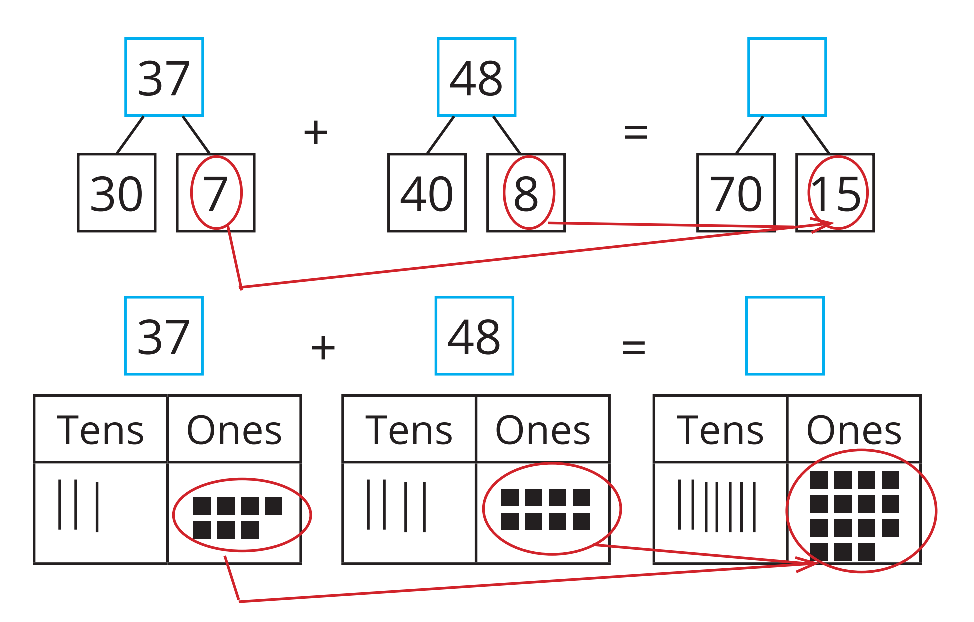
TEACHER SAY: Now that we have decomposed both addends, we are able to add the Tens and Ones together to find the sum. There may be different ways that you would solve this, but let me first show you a way I thought about finding the sum.

These numbers have been decomposed into Tens and Ones. 3 Tens plus 4 Tens is 7 Tens. I am going to write 70 on the board and draw 7 Tens sticks.

TEACHER DO: Record 70 on the board under the images and draw 7 Tens sticks. Circle both the 3 Tens and the 4 Tens and then draw a line connecting them to the 70 to visually show the students.



TEACHER SAY: **Now if we look at the Ones place, we have 7 and 8. I am going to use the Doubles mental math strategy to solve that problem. I know that 7 + 7 = 14, so 7 + 8 = 15. We have 15 Ones. I am going to write 15 next to the 70, and under it I will draw 1 Tens stick and five Ones dots to represent 15.**



TEACHER DO: Record and draw 15 on the board. 70 + 15 = ____.

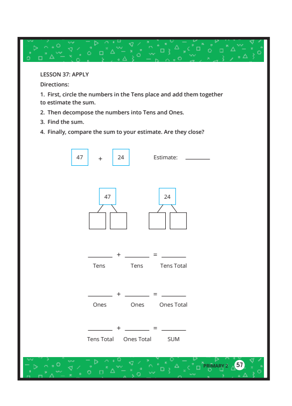
TEACHER SAY: **Now, I can add 70 plus 15. I can see that I have 8 Tens sticks and 5 Ones dots. 70 + 10 + 5 = 85. The sum of 37 + 48 is 85. Raise your hand if you can tell me how I solved that problem. If you get stuck, you can ask a friend for help.**

 **STUDENTS DO:** Raise hand to volunteer. Selected students share their summaries. If necessary, ask a friend for help.

TEACHER SAY: **Good work. You helped me decompose both of these numbers into Tens and Ones. Then I added the Tens together and the Ones together. Our estimate was 70, but our sum was actually in the 80s. Give me a Thumbs Up if you have an idea why the estimate was so far away from the actual sum.**

 **STUDENTS DO:** Give a **Thumbs Up** to volunteer. Selected students share their thinking.

TEACHER DO: Confirm or correct students' thinking.


LESSON 37: APPLY

Directions:

1. First, circle the numbers in the Tens place and add them together to estimate the sum.
2. Then decompose the numbers into Tens and Ones.
3. Find the sum.
4. Finally, compare the sum to your estimate. Are they close?

47 + 24 Estimate: ____

47 24

____ + ____ = ____
Tens Tens Tens Total

____ + ____ = ____
Ones Ones Ones Total

____ + ____ = ____
Tens Total Ones Total SUM

PRIMARY 2 57

TEACHER SAY: **Our estimate was not close because 37 is actually closer to 40 and 48 is closer to 50. That tells us that sometimes the place value strategy will give us a good estimate and sometimes it will not. Open your student book to page Lesson 37: Apply.**

 **STUDENTS DO:** Open student book to page Lesson 37: Apply.

4. TEACHER SAY: **On this page you will see one problem like the one we did together.**

TEACHER DO: Read aloud the directions and the practice problem.

TEACHER SAY: **Do you have any questions about the problem?**

TEACHER DO: Answer any questions students have about the practice problem.

TEACHER SAY: **Work with your Shoulder Partner to solve the practice problem.**

 **STUDENTS DO:** Work with their **Shoulder Partner** to solve the practice problem.

TEACHER DO: Walk around the room and observe students as they discuss and solve the problem. Take note of students who may need additional instruction in estimation, decomposing, or addition.

When Learn time is over, use an **Attention Getting Signal** to bring the group back together.

TEACHER SAY: **Nice work today. You did some very challenging math work.**



Reflect (5 minutes)

Directions

1. TEACHER SAY: **I am pleased you work so hard to use place value, estimate, and decompose to solve math problems. Think about how these strategies help you add and subtract. I will give you a few minutes of Think Time, and then I will use Calling Sticks to select some of you to share your thinking.**

 STUDENTS DO: Think for one minute about the strategies they have been practicing.

TEACHER DO: After one minute, get students' attention.

TEACHER SAY: **Turn to your Shoulder Partner and share your thinking with each other. I will give you one minute.**

 STUDENTS DO: Share their thinking with their **Shoulder Partner**.

TEACHER DO: After one minute, use **Calling Sticks** to choose 2 or 3 students to share their thinking with the whole group.

 STUDENTS DO: Selected students share their thinking with the group.

TEACHER SAY: **I heard wonderful ideas about how these strategies help you add and subtract. Put away your student book and pencil for today and give your Shoulder Partner a high five.**

 STUDENTS DO: Put away student book and give **Shoulder Partner** a high five.

Lesson 38 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Decompose 2-digit numbers to solve addition problems.
- **Model** regrouping using pictures or manipulatives.

LESSON PREPARATION

Create place value kits that include items students can use to **Model** Tens and Ones. See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Addends
- Ones
- Place value
- Regrouping
- Sum
- Tens

MATERIALS

- Calendar Math area
- Student book and pencil
- Sets of materials to **Model** Tens and Ones (one set for the teacher)
- Optional: One set per small group of students



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



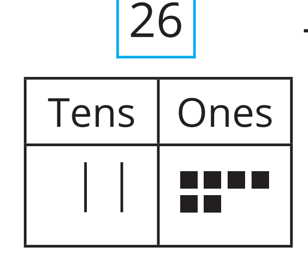
Learn (40 minutes)

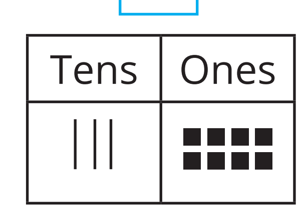
Directions

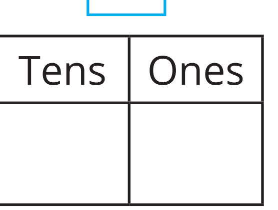
Note to the Teacher: In today's lesson, students begin to explore the regrouping process. They continue to draw Tens sticks and Ones dots, but begin to recognize quantities over 9 in the Ones place. If you have access to place value materials such as Base Ten blocks, you can use them instead of or in addition to drawing to model the regrouping process. Drawing and modeling with physical math tools reinforces the regrouping process in a tangible way and helps students connect their new learning to their existing experiences in Calendar Math.

1.TEACHER DO: Write 26 + 38 = ___ on the board. Have students help you review how to draw the place value model of the problem using Tens sticks and Ones dots.

 **STUDENTS DO:** Help the teacher review how to decompose 2-digit numbers into Tens and Ones boxes and draw a place value model using Tens sticks and Ones dots. Selected students go to the board to record work.







TEACHER SAY: We have been working hard to solve addition problems by decomposing the numbers into Tens and Ones. In the problems we have been working on, we have added Tens to Tens and Ones to Ones and recorded the answer. Today we are going to look at more challenging problems. We are going to learn about REGROUPING. Say the word REGROUP with me.



STUDENTS DO: Repeat: regroup.

TEACHER SAY: Let's look at the problem on the board. We decomposed the addends into Tens and Ones. We also drew a place value model of the Tens and Ones using sticks and dots. See if you can solve the problem in your head, and then Whisper the sum into your hand.



STUDENTS DO: Use mental math strategies to solve the addition problem. **Whisper** into hands: 64.

TEACHER SAY: Good. The sum of 26 and 48 is 64. Some of you might have added the Tens first and then the Ones. Let's look at the Ones. I see 6 Ones and 8 Ones. 6 + 8 = 14. Can I write 14 in the Ones place? Raise your hand to share your thinking.



STUDENTS DO: Raise hands to volunteer. Selected students share their thinking.

2. TEACHER SAY: What do we do in Calendar Math when we have 9 sticks in the Ones pocket and need to add one more? Give me a Thumbs Up when you are ready to share.



STUDENTS DO: Give a **Thumbs Up** to share. Selected students share their thinking.

TEACHER SAY: Yes, if we have 9 Ones, and we need to add one more, we bundle the 10 Ones to make 1 Ten and move the group of 10 to the Tens pocket. That is called REGROUPING. We are regrouping the Ones into a Ten.

TEACHER DO: If helpful, use the bundles of 10 in the Calendar Math area to help students understand that they literally regroup the 10 Ones into one group of 10.

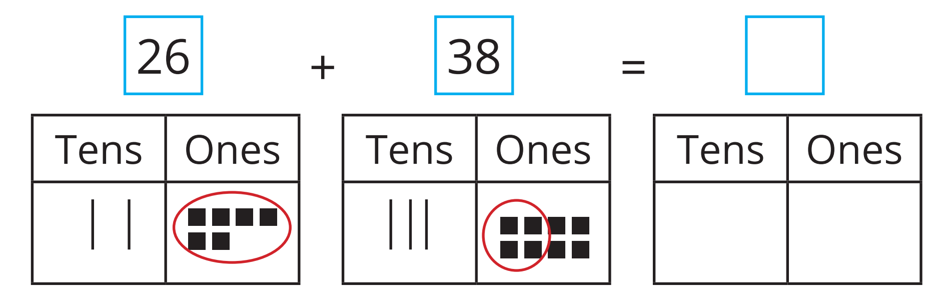
TEACHER SAY: How does that help us understand what to do in this addition problem? How do we regroup to solve it? Think for a moment and then turn to your Shoulder Partner and share your ideas. Give me a Thumbs Up when you are ready to share your ideas.

STUDENTS DO: Think for a moment and then share their thinking with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their ideas with the whole group.

TEACHER DO: Listen to students' ideas. Note which students already have an understanding of regrouping and which students may need **model**ing and practice with hands-on materials.

TEACHER SAY: In the problem on the board, we have 6 Ones and 8 Ones. We know that 6 + 8 = 14. We know that we cannot write 14 in the Ones place. That is more than 9 Ones. I can solve that problem by regrouping 10 Ones into 1 Ten. Watch as I do that on the board with the place value picture.

TEACHER DO: Draw a circle around all 6 of the Ones and 4 of the Ones in the 8 picture. Explain aloud what you are doing.



TEACHER SAY: 26 has 6 Ones. If I take those 6 Ones and 4 from 38, I will have 10 Ones. If I regroup them together, I now have 1 Ten. I cannot leave the Ten in the Ones place. I have to put it in the Tens place. What does a Ten look like? How do I draw a Ten?

STUDENTS DO: Respond together: a stick.

TEACHER SAY: Yes, a stick. So I can regroup the 10 Ones into 1 Ten and turn those 10 Ones dots into 1 Tens stick, just as we do in Calendar Math when we get to 10 Ones.

TEACHER DO: **Model** regrouping the 10 Ones into 1 Ten, crossing out the dots and drawing a new Tens stick next to the 2 Tens sticks in 26.

TEACHER SAY: Now I can count up all of the Tens: 1, 2, 3, 4, 5, 6. 6 Tens is 60. Then I have 4 Ones dots left. 60 + 4 = 64. We regrouped 10 of the Ones to make a new Ten. Let's try it together. Open your student book to page Lesson 38: Apply.



STUDENTS DO: Open student books to page Lesson 38: Apply.

3. TEACHER SAY: The problem we just solved is at the top of the page. There are Tens sticks and Ones dots to show the numbers in the problem. You can also see that if we add those two numbers together, there will be too many Ones in the Ones place. So we regroup 10 Ones into 1 Ten and move that new Ten into the Tens place. We count the Tens and Ones and write the answer on the blank. Do that now.



STUDENTS DO: Write the answer to the problem in the blank.

TEACHER DO: Record the first problem (56 + 35) on the board with a Tens-Ones chart below each number.

TEACHER SAY: Let's look at the first problem together. I have also written it on the board. How many Ones are in 56?



STUDENTS DO: Call out together: 6.

TEACHER SAY: How many Ones are in 35?



STUDENTS DO: Call out together: 5.

TEACHER SAY: Stand up if you think we will have more than 9 Ones if we add 5 and 6 together. I would like to hear your thinking.



STUDENTS DO: Stand up if they know that 5 + 6 will be more than 9. Selected students share their reasoning.

TEACHER SAY: We can use the Doubles strategy to estimate. We know that 5 plus 5 is 10 and that is already more than 9, so 5 + 6 will be more than 9. What do we need to do?



STUDENTS DO: Call out together: regroup.

TEACHER SAY: Draw Tens sticks and Ones dots for the two numbers in the first problem. I will give you one minute.

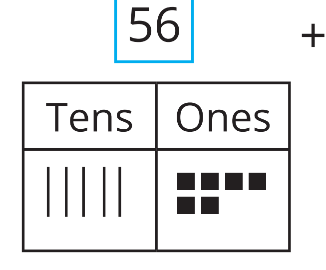


STUDENTS DO: Draw Tens sticks and Ones dots for 56 and 35 in the student book.

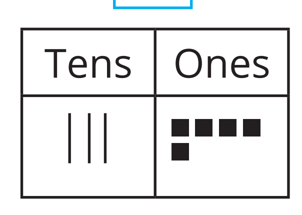
TEACHER DO: Use **Calling Sticks** to select a student to draw the Tens sticks and Ones dots in the Tens-Ones chart on the board.



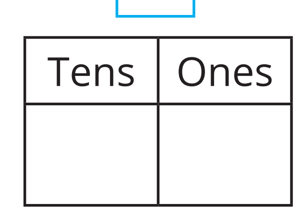
STUDENTS DO: Selected student draws the Tens sticks and Ones dots in the Tens-Ones chart on the board.



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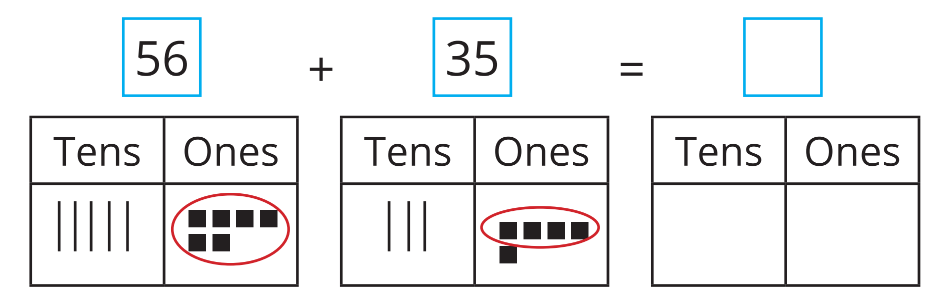


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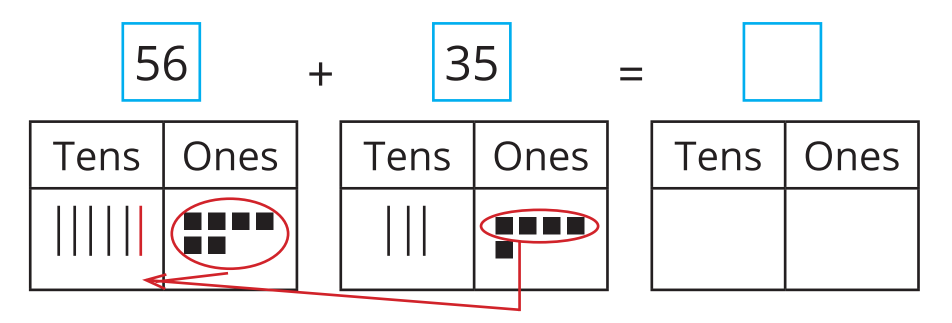
TEACHER DO: **Model** the regrouping process, doing a **Think Aloud** as you work. Stop and have the students repeat the process in the student book.

TEACHER SAY: Let's regroup 10 of the Ones into a Ten. I will circle 10 Ones dots to regroup—6 Ones dots from the 56 and 4 more from the 35 to make 10. You do it in your student book.



STUDENTS DO: Circle Ones dots to make a new Tens stick.

TEACHER SAY: We now have a new Tens stick. It cannot stay here in the Ones place, so we will move it to the Tens place, just as we do in Calendar Math. You do it too.



STUDENTS DO: Move the new Tens stick to the Tens place.

TEACHER SAY: Great, now we can count the Tens sticks. Count along with me: 10, 20, 30, 40, 50, 60, 70, 80, and the new 10 makes 90.


STUDENTS DO: Count aloud with the teacher.

TEACHER SAY: How many Ones dots do I have now?


STUDENTS DO: Call out together: one.

TEACHER SAY: I have 90 and 1 Ones dot, so our sum is 91. Thank you for helping me regroup to add. What questions do you have?


STUDENTS DO: Ask questions if needed.

TEACHER DO: Answer students' questions or have students answer them.

4. **TEACHER SAY: For the rest of the Learn segment, you will work with your Shoulder Partner to solve the last two problems. Help each other as you draw Tens sticks and Ones dots and regroup to add.**


STUDENTS DO: Work with **Shoulder Partner** to solve the last two problems.

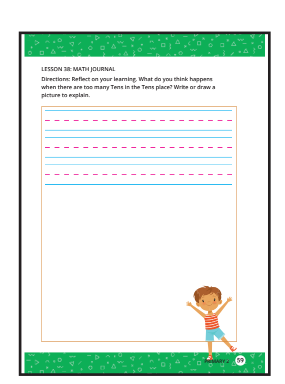
TEACHER DO: Walk around the room, observing students as they work. Take note of those who are struggling and may need extra instruction or support. As the end of Learn time gets close, use an **Attention Getting Signal**.

TEACHER SAY: Wonderful work regrouping. Keep out your student book for Reflect.



Reflect (5 minutes)

Directions



1.TEACHER SAY: **Turn to page Lesson 38: Math Journal in your student book.**

 STUDENTS DO: Turn to page Lesson 38: Math Journal in the student book.

TEACHER SAY: **Today we practiced regrouping when we had too many Ones in the Ones place. When that happened, we could regroup to make a new Ten. Think for a minute about what might happen if there were too many Tens in the Tens place? In your student book, write or draw what you think below the question I just asked.**

TEACHER DO: Give students 2 to 3 minutes to draw or write something to respond to the prompt. After a few minutes, use **Calling Sticks** to select students to share their thinking.

 STUDENTS DO: Selected students share their thinking with the whole group.

TEACHER DO: Listen to students' ideas about regrouping. Take note of students who have transferred their learning to regrouping the Tens place. It is okay if students are not demonstrating this understanding at this time.

TEACHER SAY: **Good work today. We will practice REGROUPING again. Put away your student book and pencil.**

 STUDENTS DO: Put away materials.

Lesson 39 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Mentally calculate sums of two 1-digit numbers.
- Solve 2-digit addition problems with and without regrouping.
- **Model** regrouping using pictures or manipulatives.

LESSON PREPARATION

Gather or create sets of number cards 1 to 9 (one set per pair of students).

Create a large set of number cards 1 to 9 for teacher demonstration.

KEY VOCABULARY

- Addends
- Compare
- Equal
- Greater than
- Less than
- Regrouping

MATERIALS

- Calendar Math area
- Sets of number cards 1 to 9 (one set per pair of students)
- Set of large number cards 1 to 9 (for teacher demonstration)
- Optional: Base Ten blocks or other place value models



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1. **TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students use number cards to make two 2-digit numbers and add them with and without regrouping. To keep the sums under 100, students work with two piles of cards—one pile 1 to 4 and the other pile 5 to 9.

1. **TEACHER SAY: Yesterday we practiced adding numbers where there were more than 9 Ones in the Ones place. We regrouped the Ones to create a new Ten. We are going to practice regrouping more today, but first we are going to play a quick warm-up game called Pop Up/Clap/Snap to get us thinking about adding Ones.**

I will say an addition problem. If the sum is more than 9, you pop up and stand. If it is less than 9, you clap, and if it is exactly 9, you snap. For example, if I say 5 + 6, you will pop up because 5 + 6 = 11, which is more than 9. If I say 3 + 4, you will clap because 3 + 4 = 7, which is less than 9. If I say 2 + 7, you will snap because 2 + 7 = 9. Ready?

TEACHER DO: Say six addition problems that involve two 1-digit numbers. Two problems should have a sum greater than 9, two should have a sum less than 9, and two should have a sum equal to 9. After students pop up, clap, or snap, call on students to say the sum aloud.

STUDENTS DO: Listen to the addition problem and then pop up, clap, or snap based on the sum. Selected students share the sum.

1. **TEACHER SAY: That was fun and got our math brains warmed up. I have a question to help warm up your brain even more: When we are adding, when do we need to regroup and when do we not need to regroup? Think for a moment. Give me a Thumbs Up when you are ready to share your thinking.**


STUDENTS DO: Think about the teacher's question. Give a **Thumbs Up** when they are ready to share their thinking with the whole group. Selected students answer the question.

TEACHER SAY: Today we are going to do a fun activity to practice regrouping. In today's activity, you will work with your Shoulder Partner to decompose numbers to solve addition problems. Sometimes you will have to regroup and sometimes you will not. If you would like to come up and help Model today's activity, give me a Thumbs Up.


STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected student goes to the front to help the teacher.

TEACHER DO: Display your set of large number cards 1 to 9.

TEACHER SAY: I have a set of number cards 1 to 9. I will separate them into two piles. One pile will have numbers 1 to 4 and the other pile will have numbers 5 to 9.

TEACHER DO: **Model** separating the cards into two piles. Continue to **Model** game play.

TEACHER SAY: I turn over one card from the pile with 1 to 4. That is our Tens digit. My helper will turn over a card from the second pile. That is our Ones digit. Now we have the first 2-digit number in our problem. I will record it.

TEACHER DO: Write the first 2-digit number on the board. Repeat the process for the second addend. Have the student helper write the second addend on the board.


STUDENTS DO: Record the second addend on the board.

TEACHER SAY: Now we will find the sum of these two numbers. My helper and I will draw Tens sticks and Ones dots to help us find the sum. If you think you know the sum, give a Thumbs Up.

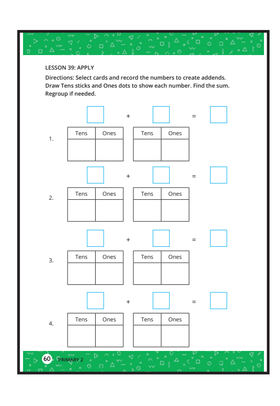

STUDENTS DO: Give a **Thumbs Up** if they think they know the sum.

TEACHER DO: Draw Tens sticks and Ones dots to represent the first addend.


STUDENTS DO: Helper draws Tens sticks and Ones dots to represent the second addend. Seated students offer help, if needed.

TEACHER DO: Have student helper help you regroup (if necessary) to solve the problem.


STUDENTS DO: If necessary, helper regroups the Ones to create a new Ten, then adds to find the sum. Seated students offer help, if needed.


LESSON 39: APPLY

Directions: Select cards and record the numbers to create addends. Draw Tens sticks and Ones dots to show each number. Find the sum. Regroup if needed.

1. ☐ + ☐ = ☐ (Tens | Ones) (Tens | Ones)

2. ☐ + ☐ = ☐ (Tens | Ones) (Tens | Ones)

3. ☐ + ☐ = ☐ (Tens | Ones) (Tens | Ones)

4. ☐ + ☐ = ☐ (Tens | Ones) (Tens | Ones)

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TEACHER SAY: Good. The sum of ____ and _____ is _____. Now it is your turn to do the activity with your Shoulder Partner. Open your student book to page Lesson 39: Apply.


STUDENTS DO: Open student book to page Lesson 39: Apply.

TEACHER SAY: I will hand out sets of number cards to you and your Shoulder Partner. Remember to separate them into two piles— one for numbers 1 to 4 and one for numbers 5 to 9. Once you have your number cards, you can begin the activity. Raise your hand if you have a question.


STUDENTS DO: Raise hand to ask clarifying questions, if needed.

TEACHER DO: Answer students' questions, if any. Hand out number cards to each pair of students.



STUDENTS DO: Work with **Shoulder Partner** to create and solve addition problems with and without regrouping.

TEACHER DO: Walk around the room and observe students as they build numbers, decompose them into Tens and Ones, draw place value models (Tens sticks and Ones dots), regroup when necessary, and find the sum. Offer assistance where necessary and note students who are having difficulty. As the Learn time nears the end, use an **Attention Getting Signal**.

TEACHER SAY: What fun we had building numbers, decomposing them, regrouping them when we needed to, and adding them. Give your Shoulder Partner a high five for playing the game with you.



STUDENTS DO: Give **Shoulder Partner** a high five.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we are going to do a Gallery Walk. You will walk around the room, looking at other students' work. Did they solve similar problems as you and your partner? Can you see what they did when they regrouped? What else do you observe about their math work? Walk around for one minute quietly. When I clap three times, stop and return to your seat.**



STUDENTS DO: Walk around the class, looking at other students' work.

TEACHER DO: Give students about one minute to walk around, and then clap three times.



STUDENTS DO: Stop walking and return to their seat.

TEACHER SAY: Give me a Thumbs Up if you would like to share with the group what you noticed. Remember to be kind and discuss math topics.



STUDENTS DO: Give a **Thumbs Up** to share. Selected students share their observations.

TEACHER SAY: Good job working with your Shoulder Partner today and sharing what you are noticing as we practice regrouping. Listening to each other and seeing each other's work helps us think about math and get better at it.

Lesson 40 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Collaborate to add four 2-digit numbers.	• Addends • Regrouping • Sum	• Calendar Math area • Student book and pencil • Optional: Base Ten blocks or other place value models

PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students work in teams of four to add four 2-digit numbers. Since this skill is new, the problems are broken into two sets of 2-digit numbers. Within a group of four students, one pair of students adds two of the 2-digit numbers (with or without regrouping) while the other pair of students adds the other two 2-digit numbers. Finally, the four students work together to add the two sums.

1.TEACHER DO: Write the following problem on the board: 25 + 14 + 35 + 17 = _______

TEACHER SAY: We have been working on adding 2-digit numbers. We have decomposed numbers into Tens and Ones. We have created place value drawings to show Tens and Ones. We have learned what we can do if we have more than 9 Ones and need to REGROUP them into a new Ten.

Today we are going to work in teams of four to solve a problem like the one on the board. This problem is not adding two numbers together but adding four. When might you have to add four numbers together? Turn to your Shoulder Partner and discuss. I will use Calling Sticks to have some students share their ideas.



STUDENTS DO: Turn to **Shoulder Partner** and discuss. Selected students share their thinking.

TEACHER SAY: Great ideas. It can be tricky to add four numbers together, especially when they are 2-digit numbers. If you have an idea how we can make this easier, give me a Thumbs Up.

 STUDENTS DO: Give a Thumbs Up to volunteer. Selected students share their ideas.

TEACHER DO: If no one suggests breaking the problem into two smaller problems, offer the idea to students.

2.TEACHER SAY: **I heard many good strategies to solve this problem. I like that you are thinking about it so deeply. One strategy that is helpful is to break this problem into two smaller problems. Then we can solve those problems and add the sums together at the end. Let's try that. I need helpers.**

TEACHER DO: Use Calling Sticks to select four student helpers.

 STUDENTS DO: Selected students go to the front of the room.

TEACHER DO: Have two students add 25 and 14. Have the other two students add 35 and 17. Assist as needed. Allow students to ask friends for help, if needed. Students should use the strategies they have been learning as needed, such as the Tens and Ones boxes or the Tens sticks and Ones dots.

 STUDENTS DO: Helpers work together, drawing place value pictures to solve the addition problems. Seated students offer help, if needed.

TEACHER DO: While students are working at the board, engage seated students in a conversation about the Commutative Property of Addition.

TEACHER SAY: **I had our helpers add the numbers together in order. But does the order of the numbers matter? Could I have had _____ (helper's name) and _____ (helper's name) add 14 and 35 and _____ (helper's name) and _____ (helper's name) add 25 + 17? Share your thinking with your Shoulder Partner. Give me a Thumbs Up when you are ready.**

 STUDENTS DO: Seated students share their thinking with their **Shoulder Partner**. Give a **Thumbs Up** when they are ready. Selected students share their thinking with the whole group.

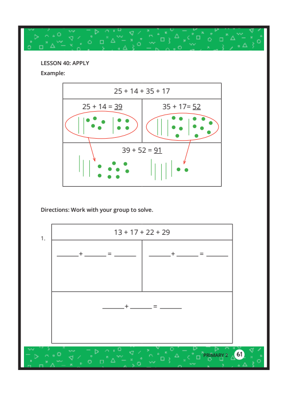
TEACHER DO: Listen to students' answers to determine who is able to Apply their learning about the Commutative Property of Addition. Remember, students are NOT required to name the property. If necessary, remind students that the order of addends does not matter. When helpers are finished adding, have them continue to work on the problem.

TEACHER SAY: **25 plus 14 equals 39. 35 plus 17 equals 52. Now I would like our helpers to work together to add the two sums— 39 and 52.**

 STUDENTS DO: Helpers work together, drawing place value pictures to solve 39 + 52. Seated students offer help, if needed.

TEACHER SAY: **39 plus 52 is 91. So now we know that 25 plus 14 plus 35 plus 17 equals 91. Adding four numbers together seems challenging, but we can break the problem down into smaller addition problems that we know how to solve.**

Take out your student book and turn to page Lesson 40: Apply. You will see the problem from the board at the top of the page.


LESSON 40: APPLY

Example:

25 + 14 + 35 + 17	
25 + 14 = 39	35 + 17= 52
39 + 52 = 91	

Directions: Work with your group to solve.

1.

13 + 17 + 22 + 29	
____ + ____ = ____	____ + ____ = ____
____ + ____ = ____	

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 STUDENTS DO: Take out student books and turn to page Lesson 40: Apply.

3.TEACHER SAY: **I will help you Count Off to get into groups of 4. Then you will work with your partners to solve addition problems. There are three problems in your student book. Two of you will add two of the addends. The other two of you will add the other two addends. Then you will add the two sums to get the total, just as we did at the board. What questions do you have?**

 STUDENTS DO: Ask questions, if needed.

TEACHER DO: Answer students' questions or allow students to help each other. Then, help them Count Off to move into groups of 4. Once grouped, students begin working together.

STUDENTS DO: Work in pairs and groups of four to solve addition problems with four addends. Help each other as needed.

TEACHER DO: Walk around and observe students as they work. Offer support as needed. Take note of students who may need additional instruction. As the Learn time comes to an end, use an **Attention Getting Signal**. Go over the answers together.

TEACHER SAY: If your group has the answer to the first problem, raise your hand.



STUDENTS DO: Raise hands to volunteer. Selected groups share their answers. Students who got different answers will share their sums.

TEACHER DO: Confirm correct answers for all three problems.

TEACHER SAY: Good job working in pairs and groups to solve problems. If you did not get the correct answer, erase your work and try again when you get a chance. Put away your student book.

STUDENTS DO: Put away student book.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today for Reflect, turn to your Shoulder Partner and discuss how you are feeling about adding 2-digit numbers and regrouping. Talk about:**
   - **What strategies you use to help you add 2-digit numbers.**
   - **When it is tricky to add 2-digit numbers and when is it easier.**
   - **Whether or not it is harder to add four 2-digit numbers than to add two 2-digit numbers.**



STUDENTS DO: Share their thinking with their **Shoulder Partner**.

TEACHER DO: Use **Calling Sticks** to select 2 or 3 students to share something their **Shoulder Partner** said.

TEACHER SAY: Thank you again for working so hard to learn how to solve these problems. You work together nicely and I love hearing your mathematical thinking. Give yourself a pat on the back.



STUDENTS DO: Pat themselves on the back.

PRIMARY 2

Mathematics

WORLD AROUND ME

Chapter 5

Lessons 41 to 50

Chapter Overview

World Around Me

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking and writing about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 41 to 50, students will work toward the following learning indicators:

D. MEASUREMENT AND DATA:

1.a. Measure lengths of object in centimeters or meters.
1.a.1. Estimate lengths to the nearest 1, 10, 50, and 100 centimeters.
1.a.2. Measure to determine how much longer or shorter one object is than another, expressing the difference in centimeters or meters.
1.a.3. Explain the relationship between centimeters and meters.

E. GEOMETRY:

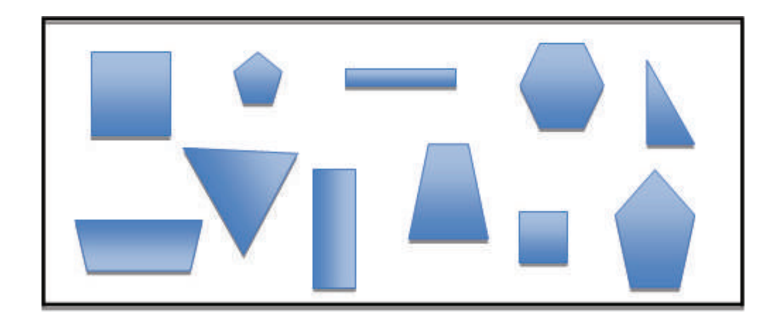
1.a. Identify the attributes of two-dimensional shapes: triangles, quadrilaterals, pentagons, and hexagons.
1.b. Identify the attributes of three-dimensional shapes: square-based pyramids, cones, cylinders, spheres, cubes, and rectangular prisms (cuboids).
1.c. Identify and draw shapes having specified attributes, such as a given number of corners (vertices) or sides.

Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
41	**Students will:** • Participate in Calendar Math activities. • Identify and name two-dimensional shapes. • Describe the attributes of two-dimensional shapes.
42	**Students will:** • Participate in Calendar Math activities. • Identify shapes that have specified attributes. • Sort two-dimensional shapes based on attributes.
43	**Students will:** • Participate in Calendar Math activities. • Identify and draw two-dimensional shapes based on given attributes. • Describe and identify two-dimensional shapes by their attributes.
44	**Students will:** • Participate in Calendar Math activities. • Arrange two-dimensional shapes to create a picture.
45	**Students will:** • Participate in Calendar Math activities. • Measure the length of objects in centimeters. • Describe strategies for accurately measuring the length of objects.
46	**Students will:** • Participate in Calendar Math activities. • Explain the relationship between centimeters and meters. • Measure objects to the nearest centimeter. • Estimate lengths of objects to benchmark lengths of 1, 10, 50, and 100 centimeters.
47	**Students will:** • Participate in Calendar Math activities. • Estimate and confirm the length of an object. • Measure the sides of two-dimensional shapes.
48	**Students will:** • Participate in Calendar Math activities. • Identify and name three-dimensional shapes. • Identify and count attributes of three-dimensional shapes.
49	**Students will:** • Participate in Calendar Math activities. • Identify three-dimensional shapes based on attributes. • Sort three-dimensional shapes based on attributes.
50	**Students will:** • Participate in Calendar Math activities. • Build three-dimensional shapes. • Describe the attributes of three-dimensional shapes.

Chapter Preparation for the Teacher

- For Lesson 41:
    - Create large copies of two-dimensional shapes on poster board or large paper for teacher demonstration: triangle, circle, pentagon, hexagon, and quadrilaterals: trapezium, rhombus, rectangle, and square. Write the name of each shape on the poster.
- For Lesson 42:
    - On the board or on a large sheet of paper, draw 2 or 3 versions of each shape in various sizes and dimensions (triangle, square, rectangle, rhombus, trapezium, hexagon, and pentagon).
        * For triangles, rectangles, trapezium, hexagon, and pentagon, create different types. See below for examples. (The lesson references 2 triangles. Be sure to include 2 triangles in your drawing or adjust the language of the lesson.)

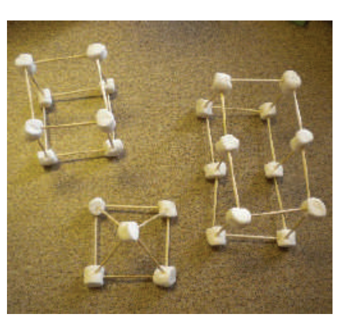


- For Lesson 44:
    - Create several sets of stencils of the two-dimensional shapes in different sizes for students to trace onto construction paper.
    - Gather large sheets of paper for students to glue their shapes onto create a picture.
    - Gather glue or glue sticks (at least one per small group of students).
    - Gather safety scissors (at least two per small group of students).
    - Print shape count cards for each student to glue onto the back of their picture design. See Shape Count Cards Blackline Master.
- For Lesson 46:
    - Gather safety scissors (at least one per pair of students).
        * Students will cut out a centimeter ruler on page Lesson 46: Apply in the student book. However, if you have plastic rulers available, have students use them instead.
    - Have at least one 30 centimeter ruler and one meter stick for teacher demonstration.
    - Cut string or yarn into the following lengths: 1 centimeter, 10 centimeters, 50 centimeters, and 100 centimeters.
        * You will need one set for teacher demonstration and one set for each small group of 4 students.
        * Consider taping the teacher demonstration set of string to dark construction paper to make it easier for students to see them. This will also make it easier for volunteers to help you measure the strings.
    - Find 2 objects in the classroom that are different lengths, one about 10 centimeters and the other about 100 centimeters. You will show students the items and they will estimate their length using the benchmarks they have learned.
- For Lesson 47:
    - Prepare sets of 4 or 5 two-dimensional shapes using construction paper. You will need one set for each small group of 4 or 5 students.
        * Shapes need to be large so that students can measure the length of a side, but no side should be larger than a centimeter ruler.
        * All sides must be to a centimeter length (no halves, thirds, and so on).
        * All sets must be the same.
    - Have a real-world example of a sphere, cylinder, and rectangular prism for the Reflect section. A basketball, a can, and a box will work well.

- For Lesson 48:
  - Have 2 or 3 real-world examples of the following three-dimensional shapes: sphere, cylinder, rectangular prism, cube, square-based pyramid, and cone. Examples include a basketball, a can, a variety of boxes, dice, a construction cone or ice cream cone, and images or models of the Giza pyramids.

- For Lesson 49:
  - Make a large copy of the shape chart on page Lesson 48: Apply in the student book. Fill in all information and display in the classroom.
  - Make a large blank copy of the shape chart on page Lesson 49: Apply in the student book (following the shape cards).

- For Lesson 50:
  - Gather materials students can use to construct three-dimensional shapes. For example, toothpicks, clay/putty, and mini-marshmallows, or straws and paper clips or pipe cleaners (chenille stems).
    * You need enough of the construction materials so that each pair of students can make at least one shape.
    * If possible, make bags of construction materials in advance to facilitate distribution to students (one bag per pair of students).
  - Use the construction materials to create an example of a three-dimensional shape.





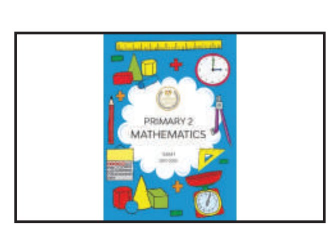

  - Print out shape labels (at least one per pair of students). See Three-Dimensional Shape Labels Blackline Master.

Materials Used

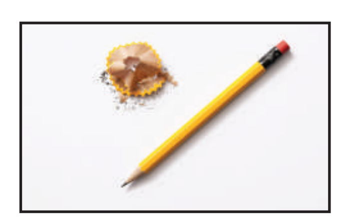
Calendar Math area



Student book



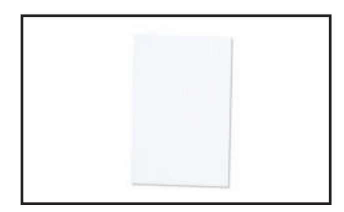
Pencil



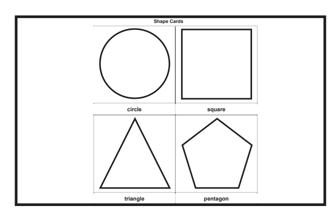
Real life example of sphere, cylinder, and rectangular prism



Large sheets of papers



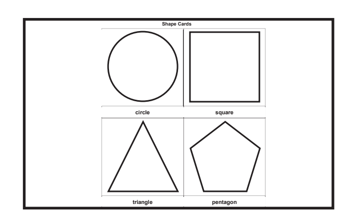
Two dimensional shape stencils



Colored construction paper



Shape count cards



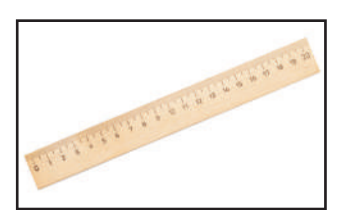
Glue or glue sticks



Scissors



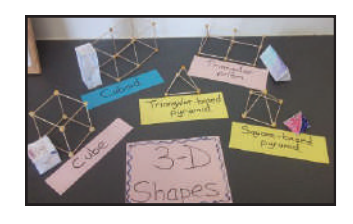
Cenimeter/meter rulers



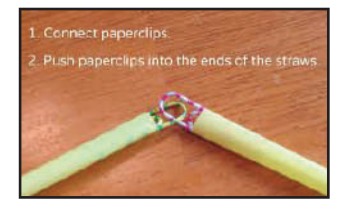
Piece of string



Three-dimensional shape labels



Bags containing three dimensional construction materials



Large two dimensional shapes

Real life 3D shapes

Lesson 41 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Identify and name two-dimensional shapes.
- Describe the attributes of two-dimensional shapes.

LESSON PREPARATION

Create large copies of two-dimensional shapes on poster board or large paper for teacher demonstration: triangle, circle, pentagon, hexagon, and quadrilateral (trapezium, rhombus, rectangle, and square)

KEY VOCABULARY

- Attributes
- Hexagon
- Parallel
- Pentagon
- Quadrilaterals
- Rectangle
- Rhombus
- Sides
- Square
- Trapezium
- Triangle
- Two-dimensional shapes
- Vertex
- Vertices

MATERIALS

- Calendar Math area
- Large two-dimensional shapes for demonstration
- Student book and pencil



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students review two-dimensional shapes and shape attributes they learned in Primary 1 and are introduced to new two-dimensional shapes. Students identify and describe the attributes of several shapes and determine that the circle is the only shape without sides or vertices.

1.TEACHER DO: Display large square, rectangle, triangle, and circle so all students can see.

TEACHER SAY: Last year, you were introduced to some shapes and some vocabulary words to describe them. Turn and Talk to your Shoulder Partner and tell them everything you remember about these shapes and the vocabulary words you used to describe them. Give me a Thumbs Up when you are ready to share your thinking.



STUDENTS DO: **Turn and Talk** to their **Shoulder Partner** about what they remember about shapes from last year. Give a **Thumbs Up** when they are ready. Selected students share with the whole group.

TEACHER SAY: Yes, last year you learned the names of these shapes and how many sides and corners they each have. Now that you are older, you are ready to use a new vocabulary word for corner. Say the word VERTEX with me.

 **STUDENTS DO:** Say: vertex.

TEACHER SAY: One corner is called a VERTEX. When we are talking about more than one vertex we call them VERTICES. Say vertices with me.

 **STUDENTS DO:** Say: vertices.

TEACHER SAY: Help me count the vertices in this square.

TEACHER DO: Point to each vertex as you and the students count aloud.

 **STUDENTS DO:** Count the vertices aloud with the teacher.

TEACHER SAY: Great job. A square has 4 vertices. It also has 4 sides.

TEACHER DO: Point to each side of the square.

TEACHER SAY: Raise your hand if you know how many vertices a triangle has.

 **STUDENTS DO:** Raise their hand to volunteer. Selected students share their answers.

TEACHER SAY: Wonderful. A triangle has 3 vertices. It also has 3 sides.

TEACHER DO: Point to each side of the triangle.

TEACHER SAY: Which one of these shapes does not have any vertices? Raise your hand when you know.

 **STUDENTS DO:** Raise hands to volunteer. Selected students share their answers.

TEACHER SAY: Yes, the circle does not have any vertices. It does not have straight sides either. Good observation. All of these shapes are two-dimensional shapes. They are flat and have two dimensions—length and width.

2.TEACHER DO: Display the hexagon, pentagon, trapezium, and rhombus with the other shapes.

TEACHER SAY: This year, we have four more two-dimensional shapes to add to our collection.

TEACHER DO: Briefly point to and name the hexagon, pentagon, trapezium, and rhombus. Do not discuss the number of sides and vertices of the shapes at this time.

TEACHER SAY: Let's talk about another important vocabulary word—ATTRIBUTES. ATTRIBUTES are features, or parts. When we talk about shapes, we usually talk about the number of sides or vertices. Sides and vertices are ATTRIBUTES of shapes. Four of the shapes up here have some attributes in common. I am going to give you 1 minute to look at the shapes to see if you can identify four shapes that share attributes.

 **STUDENTS DO:** Analyze the shapes to determine which four shapes have common attributes.

TEACHER SAY: Turn to your Shoulder Partner. Discuss which four shapes have the same attributes and what those attributes are. Give me a Thumbs Up when you are ready.

 **STUDENTS DO:** Share their thinking with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their observations.

TEACHER SAY: Yes. The square, rectangle, trapezium, and rhombus share attributes. They all have 4 sides and 4 vertices. All two-dimensional shapes with 4 sides and 4 vertices are called QUADRILATERALS. That is a wonderful new Primary 2 math vocabulary word. Say quadrilaterals with me.



STUDENTS DO: Say: quadrilaterals.

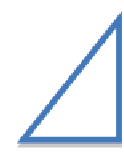
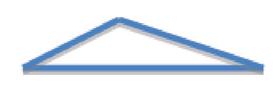
3.TEACHER SAY: Let's investigate these shapes more. In small groups, you are going to explore these shapes and identify their attributes. Take out your student book and turn to page Lesson 41: Apply.

 **STUDENTS DO:** Take out the student book and turn to page Lesson 41: Apply.

TEACHER DO: Help students **Count Off** into groups of three.

TEACHER SAY: You will work with your group to identify and record the number of sides and vertices on each of these shapes. You may mark the shapes if you would like. Let me show you one way to do that.

TEACHER DO: Draw several kinds of triangles on the board as shown below:

TEACHER SAY: What are these shapes?

 **STUDENTS DO:** Raise hand to answer. Selected students answer the question.

TEACHER SAY: Yes, these are triangles. How do you know?

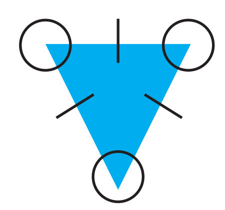
 **STUDENTS DO:** Raise hand to answer. Selected students share their thinking.

TEACHER SAY: Yes, each of these shapes has 3 sides and 3 vertices. But they do not all look the same. Any two-dimensional shape that has 3 sides and 3 vertices is a ______.

 **STUDENTS DO:** Say: triangle.

TEACHER SAY: Now let me show you an easy way to investigate these shapes for attributes. We will do the triangle together. I am going to draw lines through each of the sides and circle the vertices.

TEACHER DO: Draw lines through each side and circle the vertices on each of the triangles as below:



TEACHER SAY: On page Lesson 41: Apply in your student book, you will see a chart with these same shapes. Once you and your group determine the number of sides and vertices for a shape, you will record your findings on the chart. You will also draw a star on all of the shapes that are quadrilaterals. You may begin.

 **STUDENTS DO:** Investigate the shapes in the student book with their partners, record their findings, and identify the quadrilaterals.

TEACHER DO: Allow time for students to complete this activity. Walk around the room and offer help as needed.

TEACHER SAY: Let's go over the chart together to be sure we all found the correct attributes for each shape.

TEACHER DO: Go over the attributes for each shape. For the quadrilaterals, briefly discuss the differences between their 4 sides (as noted below) to help students understand how they are different. Use the trapezium to help students understand the vocabulary word PARALLEL.

Shape	Name	Attributes	
		Sides	Vertices
	Triangle	3	3
★	Square	4 (4 equal)	4
★	Rectangle	4 (2 short, 2 long)	4
★	Trapezium	4 (2 parallel, 2 not parallel)	4
★	Rhombus	4 (4 equal)	4
	Pentagon	5	5
	Hexagon	6	6

 **STUDENTS DO:** Check their charts for correct information. Make corrections if necessary.

TEACHER SAY: That was a lot of hard work. You all did a great job filling in your charts and identifying the attributes of two-dimensional shapes.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Let's find some of our shapes in our classroom. For example, I see the clock is a circle. I will give you 1 minute to find as many shapes as you can from your seat. Then I will give you 1 minute to share your findings with your Shoulder Partner.**

 **STUDENTS DO:** Look around the room and find examples of the two-dimensional shapes they are learning about.

TEACHER DO: Give students 2 to 3 minutes to find shapes.

TEACHER SAY: Now share what you noticed with your Shoulder Partner.

 **STUDENTS DO:** Share the shapes they found with their **Shoulder Partner**.

TEACHER SAY: You all did a wonderful job today. Give yourself a pat on the back.

 **STUDENTS DO:** Give themselves a pat on the back.

Lesson 42 Overview

LEARNING OBJECTIVES
Students will:

- Participate in Calendar Math activities.
- Identify shapes that have specified attributes.
- Sort two-dimensional shapes based on attributes.

LESSON PREPARATION

On the board or on a large sheet of paper, draw 2 or 3 versions of each shape in various sizes and dimensions (triangle, square, rectangle, rhombus, trapezium, hexagon, and pentagon). See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY

- Attributes
- Hexagon
- Parallel
- Pentagon
- Quadrilaterals
- Rectangle
- Rhombus
- Sides
- Square
- Trapezium
- Triangle
- Two-dimensional shapes
- Vertex
- Vertices

MATERIALS

- Calendar Math area
- Two-dimensional shapes (drawn on the board or on large paper)
- Student book and pencil



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students sort shapes based on specific attributes.

1.TEACHER SAY: **Yesterday we talked about several new two-dimensional shapes. Today let's start by doing a Review March. We are all going to stand up and march around the room. When I say, "Pair up," I want you to find a partner. You and your partner will have 1 minute to tell each other about one shape you remember from yesterday. Tell them the name of the shape as well as how many sides and vertices it has. When I say, "March," you will start marching around the room again until I say, "Pair up." We will do this three times. Ready? Stand up and march.**



STUDENTS DO: Participate in the Review March to share what they remember from the two-dimensional shape lesson yesterday.

TEACHER DO: Walk around the room to observe students as they talk with their partners. Repeat the game three times for students to share with three different partners.

TEACHER SAY: **Great job with the Review March. You may go back to your seat now.**



STUDENTS DO: Return to their seats.

2.**TEACHER DO:** Display poster/drawing of various shapes on the board.

TEACHER SAY: Today I have several different types and sizes of the shapes we learned yesterday. You may see some shapes that are similar to the shapes in our student book yesterday. All of the shapes on the board have the same attributes of the shapes we learned yesterday, even though some of them look different. For example, I have two different triangles on the board.

TEACHER DO: Point out the two triangles.

TEACHER SAY: These triangles look different. How do we know they are both triangles? Turn and tell your Shoulder Partner. Give me a Thumbs Up when you are ready.



STUDENTS DO: Share their thinking with their **Shoulder Partner**. Give a **Thumbs Up** when they are ready. Selected students share their thinking.

TEACHER SAY: Yes, triangles are two-dimensional shapes with 3 sides and 3 vertices. Both of these shapes have 3 sides and 3 vertices, so they are triangles. A shape can be upside down, on its side, fat, skinny, tall, or short, but as long as it has 3 sides and 3 vertices, it is a triangle.

TEACHER DO: Point to the 3 sides and 3 vertices of the triangles on display.

3.**TEACHER SAY: Tell your Shoulder Partner what you remember about quadrilaterals. Give me a Thumbs Up when you are ready.**



STUDENTS DO: Tell their **Shoulder Partner** everything they remember about quadrilaterals. Give a **Thumbs Up** when they are ready. Selected students share their thinking.

TEACHER SAY: We remember a lot about quadrilaterals. Does anyone know why shapes with 4 sides and 4 vertices are called quadrilaterals?



STUDENTS DO: Raise hand to answer. Selected students share their ideas.

TEACHER DO: Explain that the word part "quad" means 4 and the word part "lateral" is related to the word "side." A quadrilateral is made up of 4 sides.

4.**TEACHER SAY: Today we are going to sort the shapes at the board using different rules based on their attributes. The first thing we are going to do is circle the shapes that have 5 or more sides.**

TEACHER DO: Use **Calling Sticks** to select students.



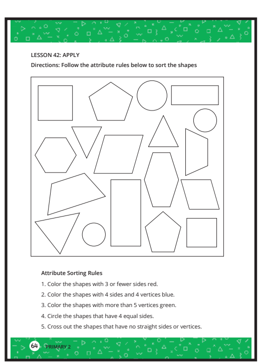
STUDENTS DO: Selected students go to the board to circle the shapes with 5 or more sides.

TEACHER SAY: Great. Now we are going to cross out the shapes that have 4 or fewer vertices.

TEACHER DO: Use **Calling Sticks** to select students.



STUDENTS DO: Selected students go to the board to cross out the shapes with 4 or fewer vertices.



LESSON 42: APPLY

Directions: Follow the attribute rules below to sort the shapes

Attribute Sorting Rules

1. Color the shapes with 3 or fewer sides red.
2. Color the shapes with 4 sides and 4 vertices blue.
3. Color the shapes with more than 5 vertices green.
4. Circle the shapes that have 4 equal sides.
5. Cross out the shapes that have no straight sides or vertices.

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5.**TEACHER SAY: Wonderful. We are going to practice this skill more in our student book. Take out your student book and turn to page Lesson 42: Apply.**



STUDENTS DO: Take out the student book and turn to page Lesson 42: Apply.

TEACHER SAY: On this page, you will see a box with many shapes inside it. Below the box, there are some Attribute Sorting Rules. Working with your Shoulder Partner, follow the directions to sort the shapes by their attributes.



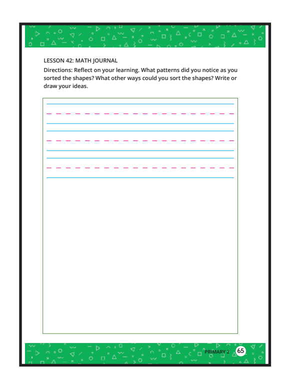
STUDENTS DO: Work with **Shoulder Partner** to sort the shapes based on the Attribute Sorting Rules.

TEACHER DO: Walk around the room to observe and assist as needed.



Reflect (5 minutes)

Directions



LESSON 42: MATH JOURNAL

Directions: Reflect on your learning. What patterns did you notice as you sorted the shapes? What other ways could you sort the shapes? Write or draw your ideas.

1. **TEACHER SAY: Turn to page Lesson 42: Math Journal in your student book. Think about our lesson today and how we sorted shapes. What patterns did you notice when you were sorting? What other ways could we have sorted the shapes? You will write or draw your thoughts in your Math Journal.**



STUDENTS DO: Reflect on lesson and respond to the prompts on the Math Journal page in the student books.

TEACHER DO: If time allows, have students share their thoughts with the group.

TEACHER SAY: Great work today, everyone. Please put away your student book.



STUDENTS DO: Put away student book.

Note to the Teacher: As an extension or assessment, students could create their own sorting mats and explain their sorting rules.

Lesson 43 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Identify and draw two-dimensional shapes based on given attributes. • Describe and identify two-dimensional shapes by their attributes.	• Attributes • Hexagon • Pentagon • Quadrilaterals • Rectangle • Rhombus • Sides • Square • Trapezium • Triangle • Two-dimensional shapes • Vertex • Vertices	• Calendar Math area • Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students practice sky drawing shapes and identifying shapes by their attributes. Students also create their own shape clues to test their partners.

1.TEACHER SAY: Yesterday we sorted two-dimensional shapes using different attribute rules. Today we are going to review those shapes by sky drawing them. You may remember skywriting letters and numbers in school before. You take your pointer finger and hold it in the air. Your finger is your air pencil. When I name a shape, you will watch me draw it on the board first, and then you will write it in the sky with me.

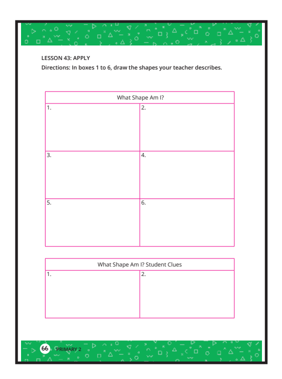
TEACHER DO: Draw a triangle on the board.

TEACHER SAY: Our first shape is a triangle. A triangle has 3 sides and 3 vertices. Stand and sky draw a triangle with me. Make sure you draw straight lines and make sharp corners.

 **STUDENTS DO:** Stand and sky draw a triangle.

TEACHER DO: Repeat the process with trapezium, square, rectangle, rhombus, pentagon, and hexagon, naming, reviewing the number of sides and vertices, and sky drawing each shape.

 **STUDENTS DO:** Sky draw each shape with their teacher.


LESSON 43: APPLY
Directions: In boxes 1 to 6, draw the shapes your teacher describes.

What Shape Am I?	
1.	2.
3.	4.
5.	6.

What Shape Am I? Student Clues	
1.	2.

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2. TEACHER SAY: Now we are going to play a game called What Shape Am I? Open your student book to page Lesson 43: Apply.

 **STUDENTS DO:** Take out student book and turn to page Lesson 43: Apply.

TEACHER SAY: On this page, you will see 6 numbered boxes. We will start with box number 1. I will call out clues about a shape and you will use those clues to identify and draw the shape. Sometimes there may be more than one correct answer. Just draw the shape that comes to your mind. Are you ready? I am a two-dimensional shape with 4 equal sides. What shape am I?

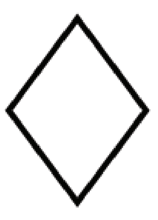
 **STUDENTS DO:** Listen to the clue and draw the shape in the student book.

TEACHER DO: Allow time for students to draw the shape. When they are finished, choose a student to name the shape and draw it on the board.

TEACHER SAY: Great. My shape is a square, which is a quadrilateral because it has four sides that are equal. Raise your hand if you drew a different shape with four equal sides.

 **STUDENTS DO:** Raise their hands to answer. Selected students share their answers.

TEACHER DO: If no one drew a different shape, draw a rhombus on the board



TEACHER SAY: Turn and discuss with your Shoulder Partner if this shape would fit the clue. Why or why not? Give me a Thumbs Up when you are ready.

 **STUDENTS DO:** Turn and discuss the shape with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER SAY: This rhombus has 4 equal sides as well. Remember, some of our shapes share many of the same attributes. Now let's go to box number 2. Here is your next clue: I am a two-dimensional shape with 3 vertices. What shape am I?

TEACHER DO: Continue with the other 4 clues listed below. For each shape, ask students if they came up with a different answer. Ensure all student answers are accurate and encourage them to explain their thinking.
3. I am a two-dimensional shape with 6 sides and 6 vertices. (hexagon)
4. I am a two-dimensional shape with 5 sides. (pentagon)
5. I am a two-dimensional shape with 4 sides: 2 short sides that are equal and 2 long sides that are equal. (rectangle)
6. I am a two-dimensional shape with 4 vertices. I am not a square or a rectangle. (rhombus or trapezium—allow two people to share—one who drew a rhombus and one who drew a trapezium.)

STUDENTS DO: Draw the shapes based on the clues given by the teacher.

3. TEACHER SAY: Now it is your turn to come up with the clues. There are two boxes at the bottom of the page. Above the boxes, it says What Shape Am I? Student Clues. First, you will find a partner using Hands Up, Pair Up. Then, you will think of a shape and come up with clues for the shape. You will tell your partner your clues. Your partner will guess your shape by drawing it in the student book in one of the boxes. Then you will discuss the shape your partner drew. Does it fit your clues? Why or why not? It does not matter who goes first. You will each get two turns. You give clues and your partner draws. Then, your partner gives clues and you draw. Do you have any questions?

 **STUDENTS DO:** Ask questions, if needed.

TEACHER DO: Answer students' questions and review the directions, if necessary.

TEACHER SAY: Let's find our partners. You will need to bring your student book and a pencil with you. Ready? Hands Up, Pair Up.



STUDENTS DO: Find a partner using **Hands Up, Pair Up**. Take the student book and pencil with them.

TEACHER SAY: Find a spot to sit with your partner and begin playing the game.



STUDENTS DO: Take turns creating clues and drawing shapes in the student books and discussing each shape.

TEACHER SAY: Great job, class. Before you go back to your desk, give your partner a high five.

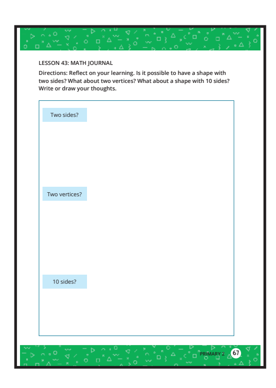


STUDENTS DO: Give their partner a high five and then go back to their desk.



Reflect (5 minutes)

Directions



LESSON 43: MATH JOURNAL

Directions: Reflect on your learning. Is it possible to have a shape with two sides? What about two vertices? What about a shape with 10 sides? Write or draw your thoughts.

Two sides?

Two vertices?

10 sides?

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1. **TEACHER SAY: Turn to page Lesson 43: Math Journal in your student book. As we reflect today, think about all of the shapes we have been learning. So far, all of them have 3, 4, 5, or 6 sides and vertices. But is it possible to have a shape with 2 sides? What about a shape with 2 vertices? Is it possible to have a shape with 10 sides? Think about these questions and write your thoughts on the Math Journal page in your student book.**



STUDENTS DO: Reflect on questions. Write their thoughts on the Math Journal page.

TEACHER DO: If time allows, have students share their thoughts with their partner or select a few students to share with the class.



STUDENTS DO: Selected students share their thinking with the class.

Lesson 44 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Arrange two-dimensional shapes to create a picture.

LESSON PREPARATION

Create several sets of stencils of the two-dimensional shapes in different sizes for students to trace onto construction paper.

Gather large sheets of paper for students to glue their shapes on to create a picture (one sheet per student).

Gather glue or glue sticks (at least two per small group of students).

Gather safety scissors (at least two per small group of students).

Print shape count cards for students to glue onto the back of their picture design (one per student). See Shape Count Cards Blackline Master

KEY VOCABULARY

- Hexagon
- Pentagon
- Rectangle
- Rhombus
- Square
- Trapezium
- Triangle
- Two-dimensional shapes

MATERIALS

- Calendar Math area
- Large sheets of paper (one sheet per student)
- Sets of stencils of two-dimensional shapes (one set per small group of students)
- Several sheets of colored construction paper (one set per small group of students)
- Shape count cards (one per student)
- Glue or glue sticks (at least two per small group of students)
- Scissors (at least two per small group of students)
- Student book and pencil



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students review shapes by writing as much as they know about the different shapes they have been studying. Students draw several two-dimensional shapes, cut them out, and arrange and glue them onto another piece of paper to create a picture. For example, students may use a hexagon and triangles to make a sun, or they may use shapes to create a flower, dog, and so on. If some of your students would benefit from tracing shapes, provide them with stencils (or precut shapes) for this lesson. Students also identify how many of each shape they used to create their picture. Both activities could serve as an assessment.

1.TEACHER SAY: We have been learning so much about two-dimensional shapes. Raise your hand if you can name a shape we have learned about.

STUDENTS DO: Raise hands to volunteer. Selected students name a shape they have learned about.

TEACHER DO: Repeat until all eight shapes have been named. Write the name of each shape on the board so all students can see. Students will refer to the list later.

TEACHER SAY: Today you are going to create art using two-dimensional shapes. You will use different two-dimensional shapes to create a picture. You may choose to make a sun, a dog, a soccer ball, a house, a cat, a train, a flower, or anything else you want. You may not draw your picture. You must use shapes to create your picture.

TEACHER DO: Hold up construction paper and shape stencils.

TEACHER SAY: You will use different colored construction paper to create your shapes. You can either draw the shapes or trace them using stencils like these. Then you will cut them out.

TEACHER DO: **Model** how to use a stencil to trace a shape.

TEACHER SAY: You will create your picture by arranging shapes on a piece of paper and then gluing them down.

Note to the Teacher: It is recommended that you show students some examples, but do not leave them up or the students may copy the pictures rather than creating their own.

TEACHER DO: Hold up shape count cards.

TEACHER SAY: When you are finished creating your picture you will count how many of each shape you used and record those numbers on a shape count card. Then you will glue the card onto the back of your picture. If you did not use one of the shapes, that is okay. What number do we use when we have none? Whisper it to me now.



STUDENTS DO: **Whisper** to the teacher: zero.

TEACHER SAY: That is correct. If you did not use any triangles, for example, you would write a zero next to triangle. Let's get started. You may get up and come get stencils and paper to begin.

TEACHER DO: If students are not already seated together, form small groups of 4 or 5 students. Hand out large sheets of paper, colored construction paper, shape stencils, glue, scissors, and shape count cards to each small group. Give students time to create their pictures. Encourage them to be creative and use their own ideas.



STUDENTS DO: Trace or draw shapes, cut shapes out, arrange shapes to create a picture, and glue shapes to finish. Complete the shape count card and glue it to the back of their picture.

TEACHER DO: Walk around and observe students, offering help as needed.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Let's share our pictures in a Gallery Walk. Leave your picture on your table. We will walk around the classroom so we can see our friends' pictures. See if anyone made a picture similar to yours. Can you identify the two-dimensional shapes in your friends' pictures? Let's stand up behind our chairs and begin our Gallery Walk.**



STUDENTS DO: Do a **Gallery Walk** around the classroom to see their friends' pictures.

TEACHER DO: Walk around the room with the students. If possible, display students' pictures in the room or hallway.

Lesson 45 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Measure the length of objects in centimeters. • Describe strategies for accurately measuring the length of objects.	• Centimeter (cm) • Length • Measurement • Ruler • Standard unit of measure	• Calendar Math area • Student book and pencil

LESSON PREPARATION

No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In this lesson, students review what they learned in Primary 1 about measurement. Students measure with standard units of measurement in Primary 2, starting with the centimeter.

1.TEACHER SAY: Today we are starting something new in math. We are going to begin measurement. Turn to your Shoulder Partner and discuss where in our daily lives we use measurement. What kinds of things do we measure? Why do we measure things? How do we measure things? After about 1 minute, I will use Calling Sticks. If I call your name, tell me something your Shoulder Partner said about measurement.

 **STUDENTS DO:** Turn to **Shoulder Partner** and discuss their answers to the teacher's questions.

TEACHER DO: After about 1 minute, use **Calling Sticks** to choose 3 or 4 students to share.

 **STUDENTS DO:** Selected students share something their **Shoulder Partner** said about measurement.

TEACHER SAY: Wow, nice work. We measure a lot of things. We measure how much we weigh, how tall we are, how many liters of water we drink. We also measure time, temperature, and how far we drive. We use different measurement tools for different types of measurement. Today we are going to learn about how to measure length. Say length with me.

 **STUDENTS DO:** Say: length.

TEACHER SAY: **LENGTH is the measurement of how long something is from one end to the other end. In Primary 1, you used items like paper clips, crayons, and markers to measure length.**

TEACHER DO: If possible, briefly **Model** this type of measurement for the students using paper clips and a pencil.

TEACHER SAY: **You were using non-standard units of measurement. Non-standard means that it is not a measuring tool. Everyone might be using a different kind of tool to measure. Measuring with non-standard tools can be challenging because the tools you use come in different sizes. The pencil may be 3 big paper clips long, but it may be 6 small paper clips long. When we measure using non-standard measuring tools, we can all get different findings for length.**

TEACHER DO: If needed, **Model** another example.

2. **TEACHER SAY:** **This year, we are going to use standard units of measurement. Instead of measuring with objects like paper clips that may be different lengths, we will use a math tool that is the same for everyone. This way, we can all measure the same items and get the same results. The first standard unit of length we will explore is called the centimeter. Say that with me.**

 **STUDENTS DO:** Say: centimeter.

TEACHER SAY: **A CENTIMETER is a very small unit of measurement. We can use a centimeter to measure small objects like pencils, crayons, erasers, and so on. Hold up your pinky finger in the air.**

 **STUDENTS DO:** Hold up their pinky finger in the air.

TEACHER SAY: **A centimeter is about the width of the end of your pinky finger. You can see that it is pretty small. It may seem difficult to measure something that small, but there is a tool to help us.**

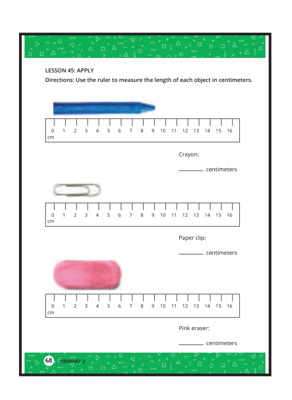
TEACHER DO: Hold up the centimeter ruler.

TEACHER SAY: **This is a centimeter ruler. Say that with me.**

 **STUDENTS DO:** Say: centimeter ruler.

TEACHER SAY: **Centimeter is a long word to write, so we can abbreviate it by writing cm.**

TEACHER DO: Write the abbreviation on the board.


LESSON 45: APPLY

Directions: Use the ruler to measure the length of each object in centimeters.

Crayon:

_______ centimeters

Paper clip:

_______ centimeters

Pink eraser:

_______ centimeters

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TEACHER SAY: **Open your student book to page Lesson 45: Apply.**

 **STUDENTS DO:** Open the student book to page Lesson 45: Apply.

TEACHER SAY: **At the top of the page is a centimeter ruler. Examine the ruler and talk about it with your Shoulder Partner. Talk about what you see and what you think the lines and numbers mean. After 1 minute, I will use Calling Sticks.**

TEACHER DO: Allow students about 1 minute to explore the ruler and discuss it with their **Shoulder Partner**. Then use **Calling Sticks** to select students to share their observations.

 **STUDENTS DO:** Explore the centimeter ruler with their partner. Selected students share their observations about the ruler.

3. **TEACHER SAY:** **Great observations. Let's learn how to read a centimeter ruler. Point to the lines and numbers on the ruler.**

 **STUDENTS DO:** Point to the lines and numbers on the ruler.

TEACHER SAY: **The distance from one long line to the next long line is a centimeter. Put your pinky finger between two lines. Is your pinky finger about a centimeter wide?**

STUDENTS DO: Place their pinky fingers between two centimeter lines to help familiarize them with the length.

TEACHER SAY: The numbers on this ruler start with zero and count up. One means 1 centimeter. Two means 2 centimeters, and so on. Let's count how many centimeters are on our ruler. Point and count aloud with me.



STUDENTS DO: Point to the centimeter lines on the ruler and count them aloud with the teacher

TEACHER SAY: Last year when you measured items, you placed them on the "starting line," like you do when you start a race. Both items had to start at the same point. It is the same with the centimeter ruler. When we use the centimeter ruler to measure, we have to line up one end of the item we are measuring with the zero line on the ruler. The zero is always the starting line. Point to the zero on your centimeter ruler.



STUDENTS DO: Point to the zero on their ruler.

TEACHER SAY: Let's practice reading measurements on the centimeter ruler. Look at the first picture. What is it?



STUDENTS DO: Call out: crayon.

TEACHER SAY: Notice that the crayon is lined up to the starting line—zero. To find out how many centimeters long the crayon is, we look at the other end of the crayon. Put your finger on the other end of the crayon.



STUDENTS DO: Put finger on the other end of the crayon.

TEACHER SAY: Give me a Thumbs Up if you know what number is under the end of the crayon.



STUDENTS DO: Give a **Thumbs Up** if they know what number is under the crayon. Selected students share their answers.

TEACHER SAY: Great job. This crayon is 9 centimeters long. Wave at me if you had 9 centimeters as the answer.



STUDENTS DO: Wave at the teacher if they had the right answer.

TEACHER SAY: Write 9 in the blank under the ruler.



STUDENTS DO: Record the answer under the ruler.

TEACHER SAY: Let's do one more together. Look at the paper clip and figure out how many centimeters long it is. Give me a Thumbs Up when you have the answer.



STUDENTS DO: Measure the paper clip. Give a **Thumbs Up** when they are ready. Selected students share their answers.

TEACHER SAY: Wonderful. The paper clip is 4 centimeters long. Wave at me if you had 4 centimeters as the answer.



STUDENTS DO: Wave at the teacher if they had the right answer.

TEACHER SAY: Record the length on the blank under the ruler.



STUDENTS DO: Record the answer.

TEACHER SAY: Do the next three on your own. Be sure to record your answers. When you are finished, compare your answers with your Shoulder Partner. Then we will go over the answers together.

STUDENTS DO: Measure the remaining items on their own. Record their answers. Compare their answers with their **Shoulder Partner**'s answers.

TEACHER DO: Walk around and observe students as they work and talk to their **Shoulder Partner**. After all students appear to be finished, go over the answers together. Ask student volunteers to share their answers. Encourage students to correct errors.



STUDENTS DO: Selected students share their answers. Make corrections, if necessary.

TEACHER SAY: You are such great mathematicians. I love how eager you are to learn new things. In our next lesson, we will use centimeter rulers to measure items around the room. Give yourself a pat on the back for your hard work today.



STUDENTS DO: Pat themselves on the back.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Reflect on the work you did to read a centimeter ruler today. Think about what you learned about measurement. Soon you will be using a ruler to measure real items. What are the rules for measuring length? What do we need to remember each time? Think for a moment. Give me a Thumbs Up when you have ideas to share.**



STUDENTS DO: Think for a moment. Give a **Thumbs Up** when ready to share ideas. Selected students share their ideas.

TEACHER DO: Record accurate ideas on the board or on paper for students to refer to in the next lesson. Ideas might include the following:

- Line up one end of the item at the zero.
- Look at the number under the other end of the item.
- Hold the item (or the ruler) still.
- Put the item close to the ruler.

TEACHER SAY: What great ideas. Thank you for sharing. This list will be helpful when we start to measure items with our centimeter rulers. You may put away your student book.



STUDENTS DO: Put away student book.

Lesson 46 Overview

LEARNING OBJECTIVES
Students will: • Participate in Calendar Math activities. • Explain the relationship between centimeters and meters. • Measure objects to the nearest centimeter. • Estimate lengths of objects to benchmark lengths of 1, 10, 50, and 100 cm.

PREPARATION
Gather safety scissors (at least one per pair of students). Prepare sets of string cut to 1, 10, 50, and 100 centimeter lengths. See Chapter Preparation for the Teacher for detailed instructions. Find two objects in the classroom of different lengths, one about 10 centimeters and the other about 100 centimeters (1 meter). See Chapter Preparation for the Teacher for detailed instructions.

KEY VOCABULARY
• Benchmark • Centimeter (cm) • Estimate • Estimation • Length • Measurement • Meter (m) • Standard unit of measure

MATERIALS
• Calendar Math area • Student book and pencil • Scissors (at least one per pair of students) • Centimeter and meter rulers (for demonstration) • Pieces of string: 1 centimeter, 10 centimeters, 50 centimeters, and 100 centimeters • Two objects for students to estimate—one should be about 10 centimeters and one should be about 100 cm (1 meter)



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

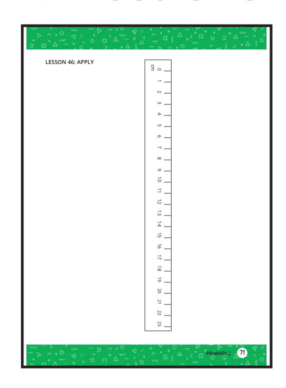


STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions



Note to the Teacher: In today's lesson, students practice measuring using a centimeter ruler. They build understanding of centimeter lengths by working with strings cut to 1, 10, 50, and 100 centimeters. Students will estimate lengths using the strings.

1.TEACHER SAY: Yesterday you practiced measuring objects in centimeters, but the objects were in your student book. Today you will measure the lengths of real objects. First, you need a ruler. Open your student book to page Lesson 46: Apply.



STUDENTS DO: Open the student book to page Lesson 46: Apply.

TEACHER DO: As students are finding the right page, hand out scissors (or have students take them out).

TEACHER SAY: You will see a centimeter ruler on the page. Tear out the page and carefully cut out the ruler.

 **STUDENTS DO:** Tear out the page and cut out the centimeter ruler.

TEACHER DO: Offer students assistance, as needed. When students are finished cutting, continue with the lesson.

TEACHER SAY: In our last math lesson, you shared strategies for measuring accurately. Let's review your ideas.

TEACHER DO: Have students help you review the ideas they shared during Reflect in Lesson 45.

 **STUDENTS DO:** Review strategies for measuring accurately.

TEACHER SAY: Great. Now let's practice measuring. Take out a crayon to measure.

 **STUDENTS DO:** Take out a crayon to measure.

TEACHER SAY: Place your crayon on the starting line of your ruler—the zero. Be sure your ruler and your crayon do not move around. Look at the number under the end of the crayon. If the end is lined up exactly with a number, look at the number closest to the end of the crayon.

 **STUDENTS DO:** Line up the crayon with the zero on the ruler and measure to find the number closest to the end of the crayon.

TEACHER SAY: Use your fingers to show me how many centimeters long your crayon is.

 **STUDENTS DO:** Hold up fingers to show the length of their crayon.

TEACHER DO: Take note of students who hold up too many or too few fingers. They may need additional instruction and support.

TEACHER SAY: Great job. The most important thing to remember when you measure is to always line up one end of the item with zero. Our rulers are small, but sometimes we want to measure longer items. If we are not able to measure, we can try to ESTIMATE lengths. Raise your hand if you remember what it means to estimate.

 **STUDENTS DO:** Raise hand to volunteer. Selected students share their understanding of estimating.

TEACHER DO: Confirm or correct students' thinking.

2.TEACHER SAY: Today we are going to talk about estimating lengths and what mathematicians call benchmarks. When we estimate lengths, it is helpful to have some BENCHMARKS, or references, to help you think about the length. For example, remember yesterday when we looked at our pinky fingers? The distance across your finger is about 1 centimeter, so your pinky finger is a good benchmark for 1 centimeter.

TEACHER DO: Display the string sets so that students can see the 1, 10, 50, and 100 centimeter lengths. Consider taping them to dark construction paper and displaying the construction paper on the board. This will also help keep the strings straight so students can measure them.

TEACHER SAY: I have cut 4 pieces of string. This first one is 1 centimeter long.

TEACHER DO: Label the 1 centimeter string. Point to the 10 centimeter length of string.

TEACHER SAY: Raise your hand if you would like to come up and measure this piece of string.

 **STUDENTS DO:** Raise hand to volunteer. Selected student measures the 10 centimeter piece of string and tells the class the measurement.

TEACHER DO: Help the student measure. **Model** as needed.

TEACHER SAY: Great work. This piece of string is 10 centimeters long.

TEACHER DO: Label the 10 centimeter string. Hold up the string that is 50 centimeters long.

TEACHER SAY: This piece of string is longer than 10 centimeters. In fact, it looks longer than my ruler.

TEACHER DO: Hold up a centimeter ruler and the length of string to show that the string is longer than the ruler.

TEACHER SAY: Turn to your Shoulder Partner and make an estimate of how long you think this piece of string is. When you have an estimate, give me a Thumbs Up.



STUDENTS DO: Turn to **Shoulder Partner** and discuss an estimated length for the string. Give a **Thumbs Up** when ready to share estimate. Selected students share their thinking.

TEACHER SAY: I heard some interesting estimates. We know that our string is longer than our centimeter ruler, so our estimates have to be higher than the highest number on the ruler. Let's find out how long the string is. To do this I am going to need helpers.

TEACHER DO: Use **Calling Sticks** to choose helpers. Have students bring their rulers with them. (If you are using the rulers from the student book, you will need multiple helpers.)



STUDENTS DO: Selected students go to the front of the room with their centimeter rulers.

TEACHER SAY: First we have to line up the string at the zero on one of our rulers. One of my helpers will put their ruler at the end of my ruler.



STUDENTS DO: One student helper places their ruler at the end of the teacher's ruler. Additional helpers add their rulers until they can measure the end of the string.

TEACHER DO: **Model** how to count using the added ruler. Have the student helpers assist you. Record the total number of centimeters for each ruler on the board, and then add numbers together.

TEACHER SAY: This string is 50 centimeters long.

TEACHER DO: Label the 50 centimeter string.

TEACHER SAY: If we are measuring something that is longer than our ruler, we can use a different tool to measure its length—a meter stick. The meter stick makes it much easier to measure the length of long things.

TEACHER DO: Show the students a meter stick. Point out the 0 at one end and the 100 at the other end.

TEACHER SAY: 100 centimeters is equal to 1 meter. One meter is exactly 100 centimeters. The meter is divided into 100 pieces, each 1 centimeter long. We abbreviate centimeter by writing cm. We abbreviate meter by writing m.

TEACHER DO: Write the abbreviation for meter on the board. Hold up the 100 centimeter length of string and point out the 10 centimeter and 50 centimeter pieces.

TEACHER SAY: We know this string is 10 centimeters long and this one is 50 centimeters long. How long do you think this last piece of string is? Turn to your Shoulder Partner and make an estimate about the length of this string. Give me a Thumbs Up when you are ready.



STUDENTS DO: **Turn and Talk** to **Shoulder Partner** to make an estimate about the length of the last piece of string. Give a **Thumbs Up** when ready. Selected students share their estimates.

TEACHER SAY: Good job. This last piece of string is longer than our 50 centimeter piece of string. Let's use the meter stick to measure the longest string and see if your estimates were close.

TEACHER DO: Measure the longest string (or have a student help you measure it).

TEACHER SAY: The longest piece of string is 100 centimeters, or 1 meter, long.

TEACHER DO: Label the 100 centimeter string.

3.TEACHER SAY: Now we have a visual benchmark for how long a meter is. Now you are going to get some practice measuring. I am going to put you into groups and give each group a set of strings like mine.

TEACHER DO: Help students **Count Off** into small groups of 4 students. Give each group a set of strings.

TEACHER SAY: You will work with your group to find at least one item in the classroom that is about as long as each piece of string. Open your student book to page Lesson 46: Apply.

 **STUDENTS DO:** Open student book to page Lesson 46: Apply.

TEACHER SAY: There is a chart on this page. You will walk around the class with your group and find objects that are about as long as the strings. They can be a little shorter or a little longer. You are just finding objects that are an estimated length and using the strings to help you. When you have found an object that is 1 centimeter, write or draw it in the 1 centimeter row. Try and find one object for each length. If you have more time you can find extra objects. You will have about 5 minutes.

 **STUDENTS DO:** Using the strings as benchmarks, find objects in the room that are about 1, 10, 50, and 100 centimeters long. Write or draw objects in student book.

TEACHER DO: Walk around the room to support students. Note who is having difficulty finding objects that are an estimated length. When Learn time is over, use an **Attention Getting Signal** to bring the group back.

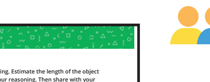
TEACHER SAY: Nice work today finding objects in the class that are an estimated length. Bring the string sets to me and return to your seats. Keep out your student book.

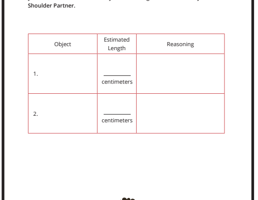
 **STUDENTS DO:** Return strings to the teacher and go back to their seats.



Reflect (5 minutes)

Directions





1.TEACHER SAY: Turn to page Lesson 46: Math Journal in your student book.

 **STUDENTS DO:** Turn to page Lesson 46: Math Journal in the student book.

TEACHER SAY: Today we used some benchmarks to estimate lengths of objects in our classroom. I am going to hold up 2 items. I want you to estimate their lengths and write your estimates on the Math Journal page. Then you will turn to your Shoulder Partner and share your estimates and discuss why you made the estimation that you did.

TEACHER DO: Hold up the first object. Give students a moment to write. Repeat with the second object.

 **STUDENTS DO:** Record their estimates for each object. Turn to **Shoulder Partner** to share. Discuss their rationale.

TEACHER DO: If time allows, have students report their estimates and share their thinking. Confirm or correct answers as needed using the benchmark strings to help students who are struggling.

TEACHER SAY: Nice work today estimating length. Put away your student book and give your Shoulder Partner a high five.

 **STUDENTS DO:** Put away student book and high five **Shoulder Partner**.

Lesson 47 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Estimate and confirm the length of an object. • Measure the sides of two-dimensional shapes.	• Centimeter • Estimation • Length	• Calendar Math area • Student book and pencil • Centimeter rulers • Sets of two-dimensional shapes (one set for each group of 4 or 5 students) • A real-life example of a sphere, a cylinder, and a rectangular prism

LESSON PREPARATION

Prepare sets of 4 or 5 two-dimensional shapes using construction paper. You will need one set for each small group of 4 or 5 students. See Chapter Preparation for the Teacher for detailed instructions.

Have a real-world example of a sphere, cylinder, and rectangular prism for the Reflect section. A basketball, a can, and a box will work well.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students review estimation and measurement of length. They then compare measurements.

1.TEACHER SAY: **Yesterday we learned that 1 centimeter is about the length across your pinky finger and that 100 centimeters is a meter. We estimated objects around the classroom to see what objects were about 10 centimeters and 100 centimeters long. Let's review. Take out a pencil.**

 STUDENTS DO: Take out a pencil.

TEACHER SAY: **Think about the benchmark lengths we explored yesterday—1, 5, 10, and 100 centimeters. Look at your pencil and make an estimate of its length. Whisper it into your hands.**

 STUDENTS DO: **Whisper** estimate into hands.

TEACHER SAY: **Now that you have an estimate, let's find out how long your pencil actually is.**

Take out your ruler and measure your pencil. Remember to line up the pencil along the ruler starting on the left side at the zero and following along the ruler to find the end of the pencil and the length.

 **STUDENTS DO:** Take out ruler and measure pencil.

TEACHER SAY: If your estimate was close to your measurement, stand up next to your chair. If your estimate was pretty close, stay seated. If your estimate was not close at all, squat down next to your chair. We are still learning, so it is okay if you need more practice.

 **STUDENTS DO:** Stand, sit, or squat depending on their estimates and measurements. Return to seat when asked.

TEACHER DO: Observe students' responses.

2.TEACHER SAY: Today we will be measuring the length of the sides of two-dimensional shapes. You will work in groups to measure the length of one side of a shape. Each group will get a set of shapes to measure.

TEACHER DO: Display a construction paper pentagon on the board.

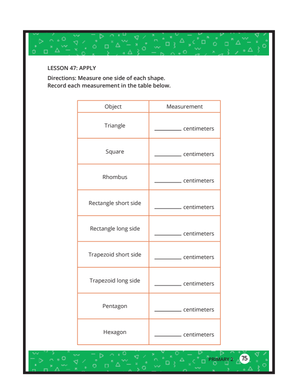
TEACHER SAY: This pentagon has 5 sides. When I look at this side I can estimate that it is larger than 10 centimeters since I remember from yesterday about how long 10 centimeters would be. I estimate it is about _____ centimeters.

TEACHER DO: Write on the board: Estimate = _____ centimeters.

TEACHER SAY: Now I need to find the exact measurement, so I am going to Model how to measure one side of this pentagon.

TEACHER DO: Model measuring one side of the pentagon. Record the measurement on the board.

TEACHER SAY: You will measure one side of each shape. After you measure one side of a shape, take another shape from the set and measure one of its sides. Measure as many shapes as you can until you hear 3 claps. Take out your student book and turn to page Lesson 47: Apply.


LESSON 47: APPLY

Directions: Measure one side of each shape.
Record each measurement in the table below.

Object	Measurement
Triangle	_____ centimeters
Square	_____ centimeters
Rhombus	_____ centimeters
Rectangle short side	_____ centimeters
Rectangle long side	_____ centimeters
Trapezoid short side	_____ centimeters
Trapezoid long side	_____ centimeters
Pentagon	_____ centimeters
Hexagon	_____ centimeters

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 **STUDENTS DO:** Take out student book and turn to page Lesson 47: Apply.

TEACHER DO: Use **Calling Sticks** to form groups of 4 or 5. Direct students to take the student book and ruler and move to sit with their group. Give each group a set of shapes.

 **STUDENTS DO:** When name is called, sit with their group. Measure sides of shapes and record findings.

TEACHER DO: Walk around the room to support students. Notice who is having difficulty measuring. When 5 minutes are left, use an **Attention Getting Signal** and have students go back to their seats.

 **STUDENTS DO:** Return to their seats.

TEACHER SAY: Wow. You did a lot of great measuring today. Your practice is really paying off.

TEACHER DO: If time allows, have students measure a few objects around the room for more practice. At the end of the Learn segment, have students return to their seats and put away the student book.

 **STUDENTS DO:** Return to their seats and put away the student book.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we measured the sides of some two-dimensional shapes and compared their lengths. Tomorrow we are going to look at more shapes, but instead of being flat, two-dimensional shapes, they will look like these.**

TEACHER DO: Hold up the ball, the can, and the box.

TEACHER SAY: Look at these shapes and think about how you might measure them. Could we measure a side? What else could we measure? How might it be a little more challenging to measure these shapes than the ones we measured today? Think for a minute. Give me a Thumbs Up when you have ideas to share.



STUDENTS DO: Think about measuring three-dimensional shapes. Give a **Thumbs Up** when they have an idea. Selected students share their thinking.

TEACHER SAY: I heard lots of interesting ideas about measuring these types of shapes. We will explore these shapes more tomorrow. Good work today.

Lesson 48 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Identify and name three-dimensional shapes.
- Identify and count attributes of three-dimensional shapes.

LESSON PREPARATION

Have 2 or 3 real-world examples of the following three-dimensional shapes: sphere, cylinder, rectangular prism, cube, square-based pyramid, and cone. Examples include a basketball, a can, a variety of boxes, dice, a construction cone or ice cream cone, and images or models of the Giza pyramids.

KEY VOCABULARY

- Attributes
- Cube
- Cylinder
- Edges
- Faces
- Rectangular prisms
- Sphere
- Square
- Square-based pyramid
- Vertex
- Vertices

MATERIALS

- Calendar Math area
- Student book and pencil
- Real-life examples of three-dimensional shapes



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In this lesson, students learn about three-dimensional shapes. There are a lot of new vocabulary words related to these shapes and some of the shapes may be unfamiliar, so multiple real-world examples of the shapes and repetition of concepts will support students' learning. Also, at other points in the day, if you have an example of a three-dimensional shape, discuss it with students. For example, any time you use dice, you can remind the students that they are cubes, or if using a box, remind students that it is a rectangular prism. The more exposure students get to the language of geometry the more successful they will be.

1.TEACHER DO: Display all of the three-dimensional shapes that you have collected somewhere for students to see. Write the words FACES, EDGES, and VERTICES on the board.

TEACHER SAY: During our Reflect time yesterday, I showed this shape. Some of you mentioned that we can measure around the shape. Some of you mentioned that these shapes are challenging to measure because they are not flat.

TEACHER DO: Hold up the ball.

TEACHER SAY: Two-dimensional shapes are flat and have only two dimensions—length and width. These shapes have three dimensions, so we call them three-dimensional shapes. Repeat that with me.

 **STUDENTS DO:** Repeat three-dimensional with the teacher.

TEACHER DO: Hold up a rectangular prism or cube and demonstrate how the shape has length, width, and height. Point to each dimension as you say them.

TEACHER SAY: These shapes have three dimensions—length, width, and height. We can measure how long they are, how wide they are, and how tall they are, or their height. You learned about some three-dimensional shapes last year in Primary 1. Just like two-dimensional shapes, these shapes have some special attributes and we need to learn some new vocabulary to describe them.

Two-dimensional shapes have sides and vertices. Three-dimensional shapes also have vertices, but instead of sides they have edges and faces. I have written these words on the board. Let's say them as I point to them.

 **STUDENTS DO:** Repeat the words vertices, edges, and faces as the teacher points to them.

TEACHER SAY: Good. Now look at this shape I am holding and see if you might be able to tell what a face is, what an edge is, and where the vertices are.

TEACHER DO: If possible, allow students to handle and observe the shape.

TEACHER SAY: Turn to your Shoulder Partner and talk about the faces, edges, and vertices. Where do you think they are on this shape? Give a Thumbs Up when you have an idea to share.

 **STUDENTS DO:** Talk to **Shoulder Partner** about the edges, faces, and vertices on the three-dimensional shape. Give a **Thumbs Up** when done. Selected students share their thinking about each vocabulary word and demonstrate using the three-dimensional shape.

TEACHER SAY: Good ideas. In most three-dimensional shapes, there are faces, edges, and vertices. Faces are the flat surfaces of a three-dimensional shape.

TEACHER DO: Point to the faces of the figure. Discuss the different shapes of the faces, if there are different shapes.

 **STUDENTS DO:** Observe teacher **Modeling** where the faces are in a three-dimensional shape.

TEACHER SAY: Good. FACES are the flat surfaces of a three-dimensional shape. I will write that on the board.

TEACHER DO: Write definition on board after the word faces.

TEACHER SAY: An EDGE is where two faces meet.

TEACHER DO: Hold up the three-dimensional shape and run your finger along some edges. Demonstrate how an edge is formed when two faces meet.

 **STUDENTS DO:** Observe teacher **Modeling** where the edges are in a three-dimensional shape.

TEACHER SAY: Let's add that definition to our vocabulary.

TEACHER DO: Write the definition of the word edge on the board.

TEACHER SAY: VERTICES are similar to the vertices in a two-dimensional shape. They are the corners where edges meet.

TEACHER DO: Demonstrate how the edges of the shape come to a point, or corner, to make vertices. Write the definitions on the board under the word.

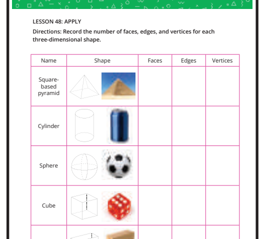


STUDENTS DO: Observe teacher **Modeling** where the vertices are in a three-dimensional shape.

TEACHER SAY: I have written the definitions of FACES, EDGES, and VERTICES on the board. Let's look at more three-dimensional shapes and explore how many faces, edges, and vertices they have. Open your student book to page Lesson 48: Apply.



STUDENTS DO: Open student book to page Lesson 48: Apply.



LESSON 48: APPLY

Directions: Record the number of faces, edges, and vertices for each three-dimensional shape.

Name	Shape	Faces	Edges	Vertices
Square-based pyramid				
Cylinder				
Sphere				
Cube				
Rectangular prism				

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TEACHER SAY: On this page, you will see a chart with the names and pictures of the three-dimensional shapes that I have. You may remember some of these, and some of them may be brand new. I will hold up a shape. Find it on the chart in your student book and put your finger on the name.

TEACHER DO: Hold up the cube and allow time for students to find it.



STUDENTS DO: Find the image of the cube and place their finger on the word "cube."

TEACHER SAY: Great, you found it. This is a cube. We use dice a lot in math, but their shape name is cube. I am going to need a helper to count the faces.

TEACHER DO: Use **Calling Sticks** to select a helper.



STUDENTS DO: Selected student helps the teacher count the faces. All students record the number in the student book.

TEACHER DO: Use **Calling Sticks** to select additional students to help you count the edges and vertices.



STUDENTS DO: Selected students help the teacher identify and count the edges and vertices of the three-dimensional shapes. All students record the information in the student book.

TEACHER SAY: Great work. You are going to work in small groups to fill out the rest of the chart. I have collected multiple examples of each three-dimensional shape. Once you are in your group, one member will come up and select a three-dimensional shape. Work together to record the number of faces, edges, and vertices. Then return the shape and select a new one. Once you have been assigned to a group, take your student book and go sit with your group.

TEACHER DO: Help students **Count Off** to form small groups of 4 or 5.



STUDENTS DO: Move to work with their assigned group. Work together to identify and count the number of faces, edges, and vertices of all of the three-dimensional shapes.

TEACHER DO: Walk around the room to support students. Take note of students who may need additional instruction or support. When there are about 5 minutes of Learn time left, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: Wow. I heard lots of good thinking about faces and edges and vertices. Please return to your seats. Let's go over the chart together. Make sure you correct any mistakes and fill in any blanks for shapes you did not get to.



STUDENTS DO: Return to seats.

TEACHER DO: Go over the answers for each shape. If time allows, have students help you demonstrate the answers. Otherwise, simply announce them.



STUDENTS DO: Selected students assist the teacher (if time allows). All students check answers, making corrections and filling in blanks as needed.

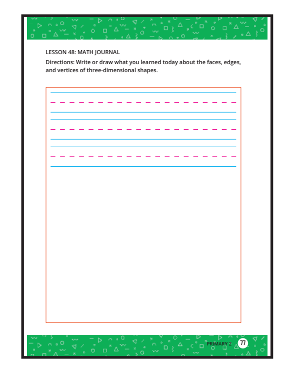
TEACHER SAY: I am so proud of you. You collected a lot of information about these three-dimensional shapes. We can use this chart to help us compare them and see how they are the same and different. Give your Shoulder Partner a high five and keep out your student book for Reflect.

 **STUDENTS DO:** Give high five to **Shoulder Partner**.



Reflect (5 minutes)

Directions


LESSON 48: MATH JOURNAL
Directions: Write or draw what you learned today about the faces, edges, and vertices of three-dimensional shapes.

1. **TEACHER SAY: Turn to page Lesson 48: Math Journal in your student book.**

 **STUDENTS DO:** Turn to page Lesson 48: Math Journal in the student book.

TEACHER SAY: There is a prompt at the top of the page. It says write or draw what you learned today about the faces, edges, and vertices of three-dimensional shapes. You can write what they are, draw examples, and share anything else you learned about these shapes and vocabulary. After a few minutes, you will share with your Shoulder Partner.

TEACHER DO: Allow 1 to 2 minutes for students to complete the Math Journal entries.

 **STUDENTS DO:** Write or draw about what they learned about three-dimensional shapes and faces, vertices, and edges.

TEACHER SAY: Now share your thinking with your Shoulder Partner.

 **STUDENTS DO:** Share the Math Journal entry with their **Shoulder Partner**.

TEACHER DO: Walk around and listen to students. Take note of students who have a strong understanding and may be able to help others in upcoming lessons.

TEACHER SAY: Good work today. Put away your student book.

 **STUDENTS DO:** Put away student book.

Lesson 49 Overview

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Identify three-dimensional shapes based on attributes.
- Sort three-dimensional shapes based on attributes.

LESSON PREPARATION

Display a large, completed copy of the three-dimensional shape chart on page Lesson 48: Apply in the student book.

Display a large blank copy of the shape chart on page Lesson 49: Apply in the student book (following the shape cards).

KEY VOCABULARY

- Attributes
- Cube
- Cylinder
- Edges
- Faces
- Rectangular prisms
- Sphere
- Square-based pyramid
- Vertex
- Vertices

MATERIALS

- Calendar Math area
- Student book and pencil
- Scissors (at least one per pair of students)
- Glue or glue sticks (at least one per pair of students)
- Real-life examples of three-dimensional shapes



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students continue to explore three-dimensional shapes. Students cut out images of the 3D shapes and sort them according to attributes. To save lesson time, consider cutting out the shape cards ahead of time and giving them to students to sort.

1.TEACHER DO: Display the three-dimensional shapes from Lesson 48.

TEACHER SAY: Yesterday we learned the names of the three-dimensional shapes that I have up front. We also learned some new words—faces and edges—and we reviewed the word vertices as it relates to three-dimensional shapes. We found and counted the faces, edges, and vertices of each shape. Let's play a pop-up game to review what we learned. You can refer to the chart on the board if needed.

TEACHER DO: Point to the completed chart on the board.

TEACHER SAY: I am going to give you some clues. If you think you know the shape I am describing, you pop up. I will then call on someone who is popped up to come to the front and hold up the shape. Ready?

TEACHER DO: Select a three-dimensional shape (without revealing the name of it to students). State attributes of the shape. Call on a student who has popped up to come to the front and find an example to show the class. Have student state the shape's name. If the student is having trouble remembering, you can help them with the name of the shape.

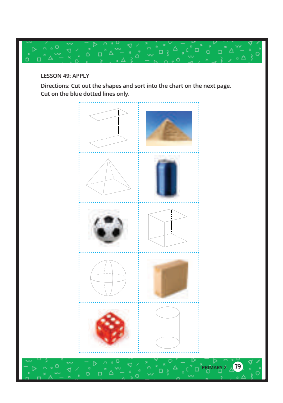
Examples:
- This shape has two circle faces. It does not have any vertices. (cylinder)
- This shape has five vertices. It has five faces. One of its faces is a square. (square-based pyramid)
- This shape has 8 vertices and 12 edges. All of the faces are the same shape. (cube)



STUDENTS DO: Listen to clues and pop up if they know what shape is being described. Selected students go to the front, find an example, and state the name of shape. Return to seat when finished.

TEACHER DO: Repeat the process for 3 or 4 three-dimensional shapes.

TEACHER SAY: **Good work. You really know your shapes. Let's Apply our learning and sort the shapes into categories. Open your student book to page Lesson 49: Apply.**



LESSON 49: APPLY

Directions: Cut out the shapes and sort into the chart on the next page.
Cut on the blue dotted lines only.



STUDENTS DO: Open the student book to page Lesson 49: Apply.

TEACHER DO: Display your large copy of the chart on page Lesson 49: Apply in the student book.

TEACHER SAY: **On this page, you have pictures and names of all the three-dimensional shapes that we have been talking about. Cut out the shapes.**

TEACHER DO: Hand out (or have students take out) scissors.



STUDENTS DO: Cut out the shape cards in the student book.

TEACHER DO: When students have cut out their shapes, give directions for the sorting activity.

TEACHER SAY: **In your student book, there are boxes with attribute descriptions at the top. This first box says shapes with 4 or more faces.**

TEACHER DO: Point to the chart you displayed on the board.

TEACHER SAY: **You will look at all of the shapes and see which ones have 4 or more faces. When I find a shape that fits the attribute description, I will put it in the box. If the shape does not fit the description, I will leave it out. Give me a Thumbs Up if you would like to come up and show us which shapes fit in the box that says shapes with 4 or more faces.**



STUDENTS DO: Give a **Thumbs Up** to volunteer. Selected student goes to the chart and identifies three-dimensional shapes that have 4 or more faces. Student tapes the shapes into the box.

TEACHER SAY: **Yes, the rectangular prism, the cube, and the square-based pyramid all have 4 or more faces. Now it is your turn to sort the shapes. Work by yourself to place the shapes that fit that attribute description in the second box. You will not glue them down because some shapes will belong in more than one box. When both you and your Shoulder Partner are done, compare your answers to see if you agree. Once you both agree, take out the shapes and move on to the next attribute description. Give me a Thumbs Up if you are ready to sort.**



STUDENTS DO: Give a **Thumbs Up** when ready. Begin working independently to identify shapes that fit each attribute description. Compare answers with their **Shoulder Partner**. Repeat the process for each description.

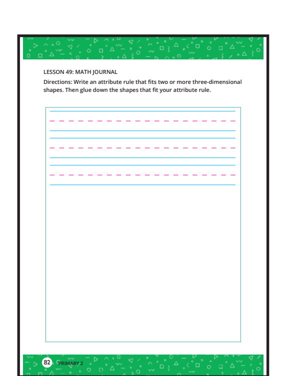
TEACHER DO: Walk around the classroom, observing students as they work. If **Shoulder Partners** quickly finish all the boxes, have them make up rules for each other. When Learn time is over, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: **Wonderful work today.**



Reflect (5 minutes)

Directions



LESSON 49: MATH JOURNAL

Directions: Write an attribute rule that fits two or more three-dimensional shapes. Then glue down the shapes that fit your attribute rule.

1. **TEACHER SAY: Turn to page Lesson 49: Math Journal in your student book.**

 **STUDENTS DO:** Turn to page Lesson 49: Math Journal in the student book.

TEACHER SAY: Today you sorted the three-dimensional shapes based on their attributes. For Reflect time, you will think of an attribute rule that fits two or more shapes. You will write your rule in your student book and then glue down the shapes that fit the rule.

TEACHER DO: Allow 2 to 3 minutes for students to think of an attribute rule and write it down. As students are working, hand out (or have them take out) glue or glue sticks.

 **STUDENTS DO:** Think of an attribute rule, record it, and glue down the shapes that fit the rule.

TEACHER SAY: Share your Math Journal entry with your Shoulder Partner. Talk about your attribute rule together.

 **STUDENTS DO:** Share Math Journal entry with their **Shoulder Partner**.

TEACHER SAY: Great sorting. Tomorrow we will make our own three-dimensional shapes. Put away your supplies and student book.

 **STUDENTS DO:** Put away supplies and student book.

Lesson 50 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Build three-dimensional shapes.
- Describe the attributes of three-dimensional shapes.

PREPARATION

Gather materials students can use to construct three-dimensional shapes. See Chapter Preparation for the Teacher for detailed instructions.

Prepare bags of construction materials to facilitate distribution to students (one bag per pair of students).

Use the construction materials to create an example of a three-dimensional shape.

Print out shape labels (at least one per pair of students). See Three-Dimensional Shape Labels Blackline Master.

KEY VOCABULARY

- Attributes
- Cube
- Cylinder
- Edges
- Faces
- Rectangular prisms
- Sphere
- Square-based pyramid
- Vertex
- Vertices

MATERIALS

- Calendar Math area
- Student book and pencil
- Real-life examples of three-dimensional shapes (from Lessons 48 and 49)
- Bags containing three-dimensional shape construction materials
- Example of a three-dimensional shape (or images)
- Three-dimensional shape labels



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students make their own three-dimensional shapes for a class shape museum. This activity builds students' familiarity and confidence with three-dimensional shapes and helps them take ownership of their learning. It is particularly beneficial for students who enjoy learning by doing.

1.TEACHER DO: Display all of the three-dimensional shapes that you have collected.

TEACHER SAY: **Yesterday we sorted shapes by attributes. We used our new vocabulary words—FACES, EDGES, and VERTICES—to describe three-dimensional shapes. Today we are going to make three-dimensional shapes for a class shape museum. We will use special construction materials to create them.**

TEACHER DO: Show students the construction materials they will be using.

TEACHER SAY: **Here is an example I made before class.**

TEACHER DO: Show students the shape you created. If possible, show students up close so they can see how it was constructed. Describe how you used the materials to create edges and vertices.

TEACHER SAY: **Good. This is a ___________. I could have made any three-dimensional shape that we have learned about. Look at our display of real-world examples. Are there any three-dimensional shapes that may be difficult to make with toothpicks/straws and connectors? Why? Raise your hand if you have an idea.**



STUDENTS DO: Raise hand to volunteer. Selected students share ideas about shapes that might be difficult to build and explain why they think so. (Answers might include cylinder, cone, or sphere.)

TEACHER SAY: **Yes, the cone, the sphere, and the cylinder may be harder to build since they do not have any straight edges.**

TEACHER DO: Hold up cone, cylinder, and sphere and show that the edges are not straight.

TEACHER SAY: **These three-dimensional shapes are challenging to build, so you may want to build a three-dimensional shape that has straight edges.**

TEACHER DO: Hold up a shape label.

TEACHER SAY: **Once you have created a shape, you will make a label so other people will know the name of the shape and how many edges, faces, and vertices it has.**

TEACHER DO: **Model** how to fill out the shape label. Draw an example of the label on the board and fill it in as students watch. **Model** how to count the faces, edges, and vertices.



STUDENTS DO: Observe teacher filling out label and describing the example shape.

TEACHER SAY: **Now it is your turn. I will use Calling Sticks to choose partners. You and your partner will decide what three-dimensional shape you would like to build. Do you have any questions?**

TEACHER DO: Use **Calling Sticks** to choose partners. Once all partners have been assigned, hand out construction materials and shape labels.



STUDENTS DO: Move to sit with partner. Select a three-dimensional shape to build. Work together to build the shape they selected and fill out the shape label.

TEACHER DO: Walk around the classroom, observing students as they build their shapes and fill out their labels. Offer assistance, if necessary. If partners finish building and writing their label before the time is over, have them build a second shape. When Learn time is over, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: **Great work today. I enjoyed watching you work and talk and build and think about three-dimensional shapes. Talk to your partner and decide which one of you will display the shape for Reflect. Once you have decided, clean up your materials and return to your seat.**



STUDENTS DO: Talk to partner to decide who will display the shape for Reflect. Clean up supplies and return to their seats. One partner puts the shape on their desk.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we are going to do a Gallery Walk. You will walk around the room looking at your friends' three-dimensional shapes. Did they build a similar shape to you? What three-dimensional shapes did most people make? What three-dimensional shape was made the least? What do you notice about how the shapes were built? What else do you observe? Walk around for 1 minute quietly. When I clap 3 times, you will stop and go back to your seat.**

 **STUDENTS DO:** Walk around classroom looking at other students' three-dimensional shapes.

TEACHER DO: Give students 1 minute to walk around looking at students' work and then clap 3 times.

 **STUDENTS DO:** Stop walking and return to their seats when they hear the claps.

TEACHER SAY: Give me a Thumbs Up if you would like to share with the group what you noticed.

 **STUDENTS DO:** Give a **Thumbs Up** to share. Selected students share observations.

TEACHER SAY: Good work with three-dimensional shapes these past few days. There are three-dimensional shapes are all around us in our world, and now we know more about them. We know their names and their attributes like edges, faces, and vertices. When you are walking home or spending time with your family, see if you notice any three-dimensional shapes. Give yourselves a pat on the back.

 **STUDENTS DO:** Pat themselves on the back.

PRIMARY 2

Mathematics

WORLD AROUND ME

Chapter 6

Lessons 51 to 60

Chapter Overview

World Around Me

COMPONENT	DESCRIPTION	LESSONS
Calendar Math	During this daily routine, students develop number sense, calendar sense, early place value concepts, counting fluency, and problem-solving skills. Students explore quantity and practice counting through patterns and movement.	15 to 20 minutes
Learn	During this daily routine, students learn and apply various math skills as the teacher guides them through review, instruction, and practice.	35 to 40 minutes
Reflect	During this daily routine, students develop their ability to express mathematical ideas by talking and writing about their discoveries, using math vocabulary, asking questions to make sense of learning tasks, clarifying misconceptions, and learning to see things from students' perspectives.	5 to 10 minutes

Learning Indicators

Throughout Lessons 51 to 60, students will work toward the following learning indicators:

D. MEASUREMENT AND DATA:

1.b. Measure masses of objects in grams and kilograms.
1.b.1. Estimate mass using grams and kilograms to benchmark weights.
1.b.2. Measure to determine how much heavier or lighter one object is than another, expressing the difference in grams or kilograms.
2.a. Solve one-step word problems involving addition and subtraction of length or mass.
3.a. Tell and write time from analog and digital clocks to the hour, half hour, and quarter hour using a.m. and p.m.
3.b. Explain that a day equals 24 hours.

CH 3

Pacing Guide

LESSON	INSTRUCTIONAL FOCUS
51	**Students will:** • Participate in Calendar Math activities. • Compare grams and kilograms. • Select appropriate units to measure the mass of objects.
52	**Students will:** • Participate in Calendar Math activities. • Investigate the mass of various items. • Match items to mass in grams or kilograms.
53	**Students will:** • Participate in Calendar Math activities. • Solve addition story problems with 1- and 2-digit numbers. • Solve story problems involving mass.
54	**Students will:** • Participate in Calendar Math activities. • Solve addition and subtraction story problems. • Solve story problems involving mass. • Create a story problem involving adding or subtracting units of mass.
55	**Students will:** • Participate in Calendar Math activities. • Explain that a day equals 24 hours. • Distinguish between a.m. and p.m.
56	**Students will:** • Participate in Calendar Math activities. • Create an analog clock. • Tell time to the hour.
57	**Students will:** • Participate in Calendar Math activities. • Tell time to the half hour. • Show time to the half hour on an analog clock.
58	**Students will:** • Participate in Calendar Math activities. • Read time to the hour and half hour. • Write time to the hour and half hour. • Match digital times to analog times.
59	**Students will:** • Participate in Calendar Math activities. • Read time to the quarter hour. • Write time to the quarter hour.

LESSON	INSTRUCTIONAL FOCUS
60	**Students will:** • Participate in Calendar Math activities. • Read time to the quarter hour. • Write time to the quarter hour. • Match analog times to the quarter hour to their digital and written forms.

Chapter Preparation for the Teacher

- For Lesson 51:
    - Gather several benchmark, real-world items for students to use to explore one gram and one kilogram. Examples include:
        - 1 g—paper clip
        - ½ kg—box of cereal
        - 1 kg—dictionary, 1-liter bottle of soda or water
        - 5 kg—watermelon
        - 10 kg—wooden chair
        - If necessary, substitute the items referenced in the lesson as benchmark units with items that are more familiar to students.
    - If possible, have standard units of mass (for example, steel weights) to **model** gram and kilogram.



- For Lesson 52:
    - Create a poster showing the benchmark items you will use in the lesson and their approximate mass. Examples include:
        - 1 gm —paper clip, cap of a ballpoint pen
        - ½ kg—2 apples, box of cereal, 4 sticks of butter
        - 1 kg—pineapple, dictionary, table lamp
        - 5 kg—watermelon, bowling ball, cat
        - 10 kg—wooden chair, car tire, dog
        - If necessary, substitute the items referenced in the lesson (and on your poster) as benchmark units with items that are more familiar to students.
    - Print sets of Mass Matching Cards (one set for each pair of students). See Mass Matching Cards Blackline Master.

- For Lesson 53:
    - If possible, gather 5 1-kg bags of rice to **Model** a story problem. Write "1 kg" on each bag. This will give students a visual of what they will see in the student book.

- For Lesson 54:
    - Optional: Obtain or create a two-pan balance (or several) to use in an extension activity.
        - *Directions for creating a two-pan balance.*
        - Materials needed: hanger, string, scissors, two paper or plastic cups, hole punch
            1. Use the hole punch to make two holes near the top of the cups. Make the holes on opposite sides of the cups. Try to get the holes directly across from each other. This will help the two cups balance once they are attached to the hanger.
            2. Cut two pieces of string 30 cm long. It is important the strings are the same length.

3. Loop and tie each string through the holes on one of the cups.
4. Hang the cups in the notches on the opposite sides of the hanger.
5. Adjust the strings so they are all the same length and the cups hang evenly.
6. Hang the balance on a doorknob or hook.



- For Lesson 55:
  - Obtain or create a large digital clock and a large analog clock to display.

- For Lesson 56:
  - If possible, have real analog and digital clocks to show students.
  - If possible, have a large teaching clock and small student teaching clocks. Both hands move at the same time on a large teaching clock, which will help students understand how real clock hands move as time changes.



  - Have materials to create a large analog clock. See Analog Clock Face Template–Large Blackline Master.
    * You will make it as you teach the lesson.
    * Cut out the labeled hour and minute hands and punch small holes in the ends. The ends will be attached to the center of the clock face.
  - Print out small analog clock faces (one per student). See Analog Clock Face Template–Small Blackline Master.
    * As an alternative, students can create clock faces using paper plates.
    * If possible, cut out the hour and minute hands for students in advance and punch small holes in the ends.
  - Gather brass brads (or another material you can use as a connector). These will be used to attach the hour and minute hands to the clock faces. You will need one for each student.



- For Lesson 57:
  - Print and cut out sets of Half Hour Cards (one set for each pair of students). See Half Hour Cards Blackline Master

- For Lesson 58:
  - Print and cut out sets of Time Matching Cards (one set for each pair of students). See Time Matching Cards Blackline Master.

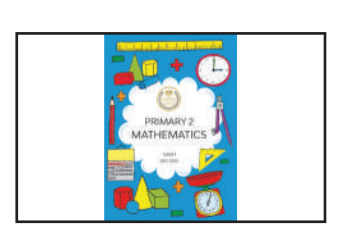
- For Lesson 59:
  - Create a large poster of the clock face in the student book on page Lesson 59: Apply.
    * Do not show a time on the clock face.
    * If possible, attach hour and minute hands to the clock face on the poster.

Materials Used

Calendar Math area



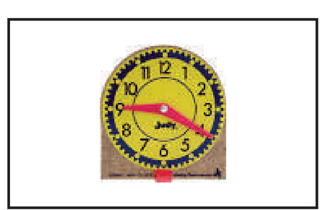
Student book



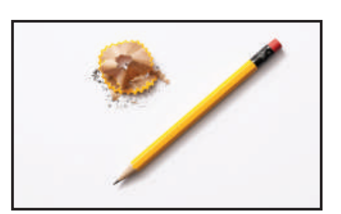
Standard units of mass (steel weights)



Teaching clock moveable hands



Pencil



Crayons



Colored pencils



Bags of rice



Large analog clock



Large digital clock



Hole punch



Scissors



Benchmark weights

Half-hour cards

Time matching cards

Student clocks

Poster showing benchmark items

Screenshot of mass matching cards BlackLine Master

Lesson 51 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Compare grams and kilograms.
- Select appropriate units to measure the mass of objects.

LESSON PREPARATION

Gather several benchmark, real-world items for students to use to explore one gram and one kilogram. See Chapter Preparation for the Teacher for detailed instructions.

If possible, have standard units of mass (for example, steel weights) to model gram and kilogram.

KEY VOCABULARY

- Gram (gm)
- Heavier
- Heavy
- Kilogram (kg)
- Light
- Lighter
- Mass
- Weight

MATERIALS

- Calendar Math area
- Benchmark, real-world weights for gram and kilogram
- Standard units of mass (steel weights), if available
- Student book and pencil



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students are introduced to measuring the mass of objects using various benchmark items that are 1 gram or 1 kilogram. Students build understanding of grams and kilograms and use what they have learned to decide which unit is appropriate to use when measuring items.

Gram and kilogram units are often referred to as "weights," but they are actually measures of mass, or how much matter is in an object. An object's MASS is consistent and unchanging no matter where the object is—on Earth, on a mountain, at the bottom of the ocean, or on the moon. However, an object's WEIGHT can change. For example, an object has a different weight on the moon than it does on Earth due to the effects of gravity. Since students are measuring all objects here on Earth, it is okay if they use the word weight from time to time to help them build understanding of mass. However, remind them that mass and weight are not the same.

1.TEACHER SAY: We have spent several days learning to measure the length of items. Whisper to your Shoulder Partner the two units we have used to measure length.



STUDENTS DO: **Whisper** to their **Shoulder Partner** the two units they have used to measure length.

TEACHER SAY: Good. We use the centimeter to measure shorter items and the meter to measure longer items. Today we will be learning to measure the mass of items. Say "mass" with me.



STUDENTS DO: Say: mass.

TEACHER SAY: Some people think mass is the same as weight, but it is not. Mass is the amount of matter—or stuff—something has. We can say that an object has mass that makes it show a weight of 10 kg. But mass and weight are different. Mass stays the same no matter where you are. If you are on Earth or the moon, your mass does not change. However, if you are on the moon, your weight will be different because the pull of gravity is different. How many of you take baths or have gone swimming before?



STUDENTS DO: Raise hand if they take baths or have gone swimming.

TEACHER SAY: Have you noticed how your body seems lighter in the bathtub, pool, or ocean? Even though your weight feels lighter, your body has not changed. Your mass—the amount of stuff in you—stays the same. We may use the term weight when we talk about mass because it helps us think about mass and because we are going to stay right here on Earth. However, it is important that you understand that weight and mass are not the same.

TEACHER DO: Display real-world examples or standard units of gram and kilogram.

TEACHER SAY: When we measure mass, we use grams and kilograms. One gram is much lighter than one kilogram. In fact, it takes 1,000 grams to equal one kilogram. Turn and Talk to your Shoulder Partner. Tell them something you may have seen or heard being measured in grams or kilograms. Give me a Thumbs Up when you are ready.



STUDENTS DO: **Turn and Talk** to their **Shoulder Partner** about items they have seen or heard being measured in grams or kilograms. Give a **Thumbs Up** when ready. Selected students share their thoughts.

TEACHER SAY: Thank you for sharing your ideas. You are going to work in groups today, so let's get into groups now.

TEACHER DO: Use **Calling Sticks** or have students **Count Off** to form small groups of 4 or 5 students. Hand out benchmark weights (real-world items) of 1 gram to each group.



STUDENTS DO: Move to work with their small group.

Note to the Teacher: If you have standard units for grams and kilograms, hand these out as well to allow students to compare the mass of the standard units to the benchmark weights. If necessary, substitute the items referenced in the lesson as benchmark units with items that are more familiar to students.

TEACHER SAY: We use the gram to measure objects with less mass, which are lighter objects. One gram weighs about the same as one paper clip, one pen cap, one raisin, or one thumbtack. Each of you hold the item I gave you so you can feel its mass.

TEACHER DO: If you gave students more than one item, encourage them to compare them by holding one item in each hand.



STUDENTS DO: Explore the benchmark, real-world weights of 1 gram with group.

TEACHER SAY: Grams are often used when we use a recipe to cook. The recipe may call for 3 gm of sugar. We use the letter g to stand for grams. What are some other items you can see from your desk that you could measure using grams? Look around and think for a moment, and give me a Thumbs Up when you are ready.

STUDENTS DO: Identify items in their classroom that they could measure using grams. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER DO: Hand out benchmark weights (real-world items) of 1 kilogram to each group of students.

TEACHER SAY: We use the kilogram to measure heavier objects. One kilogram weighs about the same as one pineapple, a baseball bat, a 1-liter bottle of soda or water, a bag of rice, or a textbook. Let's hand these items around the table so you can each feel their mass.

TEACHER DO: If you gave students more than one item, encourage them to compare them by holding one item in each hand.


STUDENTS DO: Explore the benchmark, real-world weights of 1 kilogram with their group.

TEACHER SAY: We use the letters kg to stand for kilograms. What are some items you can see from your desk that you could measure using kilograms? Give me a Thumbs Up when you are ready.


STUDENTS DO: Identify items in their classroom that they could measure using kilograms. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER DO: Select one of the gram items and one of the kilogram items students identified. If they were not able to identify any items, use two of the benchmark items. Either draw the items or write their names on the board with a blank space in the middle as shown below.

TEACHER SAY: We are going to compare the mass of these two items and use our greater than and less than symbols to express the comparison. When an item has less mass, we can say it weighs less. When an item has greater mass, we can say it weighs more. If I am comparing the _____ (gram item) and the _____ (kilogram item), which item has greater mass? Raise your hand if you think you know and can explain why you think so.

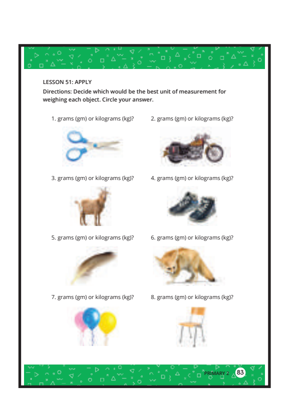

STUDENTS DO: Raise hand to volunteer. Selected students share their answers and explain their thinking.

TEACHER SAY: Yes. Which symbol would we use to make our statement on the board correct?

TEACHER DO: Use **Calling Sticks** to select a student.


STUDENTS DO: Selected student answers the question.

TEACHER DO: Draw the correct symbol (< or >) in the blank.


LESSON 51: APPLY

Directions: Decide which would be the best unit of measurement for weighing each object. Circle your answer.

1. grams (gm) or kilograms (kg)?
2. grams (gm) or kilograms (kg)?
3. grams (gm) or kilograms (kg)?
4. grams (gm) or kilograms (kg)?
5. grams (gm) or kilograms (kg)?
6. grams (gm) or kilograms (kg)?
7. grams (gm) or kilograms (kg)?
8. grams (gm) or kilograms (kg)?

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TEACHER SAY: Let's explore these units of measurement more. Take out your student book and turn to page Lesson 51: Apply.


STUDENTS DO: Take out student book and turn to page Lesson 51: Apply.

TEACHER SAY: You will see pictures of eight different items. For each item, decide if it would be better to use grams (gm) or kilograms (kg) to measure its mass. Imagine that the items pictured are real, not toys or images.


STUDENTS DO: Decide if grams or kilograms should be used to measure the mass of each item. Circle their answers.

TEACHER DO: Walk around the room and offer help as needed.

TEACHER SAY: When you are finished, compare your answers with your Shoulder Partner.


STUDENTS DO: Compare answers with their **Shoulder Partner**.

TEACHER DO: If time allows, go over the correct answers with the class.

Reflect (5 minutes)

Directions


LESSON 51: MATH JOURNAL

Directions: Reflect on your learning. Think of an item at your home whose mass you would measure in grams and one you would measure in kilograms. Draw the items. For each picture, label which unit of mass you would use.

1. **TEACHER SAY: Turn in your student book to page Lesson 51: Math Journal.**

 **STUDENTS DO:** Turn in the student book to page Lesson 51: Math Journal.

TEACHER SAY: Today I would like you to reflect on what you have learned about measuring the mass of items in grams and kilograms. Then think of one item at your home whose mass you would measure in grams and one you would measure in kilograms. Draw the items in the box on the Math Journal page and label them.

 **STUDENTS DO:** Reflect on learning from today. Think of one item at home that would be measured in grams and one that would be measured in kilograms. Draw a picture of the items on the Math Journal page and label the pictures.

TEACHER SAY: Great work today, class. You may put away your student book now.

 **STUDENTS DO:** Put away the student book.

Lesson 52 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS

LEARNING OBJECTIVES

Students will:
- Participate in Calendar Math activities.
- Investigate the mass of various items.
- Match items to mass in grams or kilograms.

LESSON PREPARATION

Create a poster showing the benchmark items you will use in the lesson and their approximate mass.

Print and cut out Mass Matching Cards (one set for each pair of students). (See Mass Matching Cards Blackline Master.)

KEY VOCABULARY

- Gram (gm)
- Heavier
- Heavy
- Kilogram (kg)
- Light
- Lighter
- Mass
- Weight

MATERIALS

- Calendar Math area
- Benchmark weights for 1 gm, ½ kg, 1 kg, 5 kg, and 10 kg
- Poster showing benchmark items and the mass of each
- Sets of Mass Matching Cards (one set per pair of students)



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students apply what they have learned about grams and kilograms. They explore benchmark, real-world examples of 1 gm, ½ kg, 1 kg, 5 kg, and 10 kg. Then students complete a sorting activity with a partner to estimate benchmark weights.

1.TEACHER SAY: Yesterday we learned about measuring the mass of objects. Let's play Four Questions to review. I am going to ask four questions about measuring mass. You are going to take turns answering the questions with your Shoulder Partner.

 **STUDENTS DO:** Take turns playing Four Questions with their **Shoulder Partner**.

TEACHER DO: Ask the following questions, allowing students time to share their answers with their partner:
- What two units do we use to measure the mass of objects?
- Are mass and weight the same thing? Explain.
- Which unit is used to measure objects with lower mass?
- Which unit is used to measure objects with higher mass?

TEACHER SAY: Great job reviewing. I have more items I want to share with you that will help us learn more about grams and kilograms. Today I have items that have a mass of about 1 gram, ½ kilogram, 1 kilogram, 5 kilograms, and 10 kilograms. Come up and stand in a circle.

Note to the Teacher: If there are too many students to form one large circle, have students form several smaller circles. You may use multiple examples of each item, or each circle may explore a different item at the same time. If necessary, substitute the items referenced in the lesson (and on your poster) as benchmark units with items that are more familiar to students.

 **STUDENTS DO:** Stand in a circle with the class.

TEACHER DO: Display the poster you created of benchmark items.

TEACHER SAY: I am going to pass around each item so you can feel its mass. Hold it for a count of 5 and then pass it to your neighbor. As you hold it, think about how light or heavy it is. Some of the items are quite massive, so I will help you hold them. The name of each item and its approximate mass are on the poster here.

TEACHER DO: Point to the poster.

 **STUDENTS DO:** Hold each item to feel the mass and count to 5. Then pass the item to their neighbor.

TEACHER SAY: Great job. I hope that helped you understand what different masses feel like. Let's play a sorting game. First, find a partner using Hands Up, Pair Up. Once you have your partner, find a spot in the classroom to sit. I will hand out the game cards.

 **STUDENTS DO:** Find a partner using **Hands Up, Pair Up**. Move to a spot in the classroom with their partner.

TEACHER DO: Take down the poster and hand out the Mass Matching Cards.

TEACHER SAY: You and your partner have a set of cards. You will work with your partner to match the items on the cards to their masses. Since you do not actually have the items, will have to use your critical thinking skills to estimate how heavy or light they might be. Remember that we are learning, so it is okay if you are not sure.

You will put all of the items that have a mass of about 1 gram together, ½ kilogram together, 1 kilogram together, 5 kilograms together, and 10 kilograms together. At the end, you will have five different piles of pictures. Are you ready? You may begin.

 **STUDENTS DO:** Work with their partner to sort picture cards based on the benchmark weights held and discussed today.

TEACHER DO: Walk around the classroom, offering help as needed. Allow students time to sort. When finished, go over correct answers with the class.

Note to the Teacher: As an extension activity, have students put their cards in order from least to greatest weight or greatest to least weight.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: As you reflect today, think about the items you held that have a mass of about 10 kilograms. If a wooden chair, a car tire, and a dog weigh about 10 kilograms, what kind of item do you think would weigh 100 kilograms? I want you to think of three items that might weigh 100 kilograms. You will have to use your critical thinking skills to estimate or guess the weight of items. Give me a Thumbs Up when you have some ideas.**

 **STUDENTS DO:** Using what they learned today, think of items that might weigh 100 kilograms. Give a **Thumbs Up** when they are ready. Selected students share their ideas.

TEACHER DO: Offer some examples if needed: refrigerator, grown man, small motorcycle.

TEACHER SAY: When you go home today, I want you to find something in your house that weighs about 1 gram, ½ kilogram, 1 kilograms, 5 kilograms, or 10 kilograms. When you find it, draw it or write it down so you remember. Be sure to write the mass on the paper as well. It is okay if it is an estimate or guess. Bring it to school tomorrow and we will share them first thing during math time.

TEACHER DO: If necessary, hand out paper to students to encourage them to do the at-home project.

TEACHER SAY: Great work today. Turn and give your Shoulder Partner a high five.

 **STUDENTS DO:** Give their **Shoulder Partner** a high five.

Lesson 53 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Solve addition story problems with 1- and 2-digit numbers. • Solve addition problems involving mass.	• Gram (gm) • Kilogram (kg) • Mass	• Calendar Math area • 5 1-kg bags of rice with "1 kg" labels • Student book and pencil

LESSON PREPARATION

Gather 5 1-kg bags of rice (if possible) to model a story problem. Write "1 kg" on each bag.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, you **Model** *how to solve one-step story problems involving mass. Students work with a partner to solve several one-step story problems using picture clues. This activity reinforces their addition skills and provides a review of the mass of different objects.*

1.TEACHER SAY: Yesterday I gave you an assignment to do at home. I asked you to find an object at your house, draw it, and write its mass (or estimated mass) on the paper. Raise your hand if you were able to do the project.

 **STUDENTS DO:** Raise hand if they did the project.

TEACHER DO: If many students completed the project, collect the papers and do a **Gallery Walk**. If few students completed the project, have those students present their findings to the class.

 **STUDENTS DO:** Participate in **Gallery Walk** to view their friends' work or share their work with the whole group.

TEACHER SAY: Great work. You may go back to your seat now.

 **STUDENTS DO:** Go back to their seat.

TEACHER SAY: Today we are going to solve story problems involving mass. We will do one

together, and then I will ask you to work with a partner to solve some problems in your student books.

TEACHER DO: Gather the 5 bags of rice with 1 kilogram labels and put them at the front of the room in two groups: one group of 3 and one group of 2.

TEACHER SAY: **Fatima has 3 bags of rice. Hassan has 2 bags of rice. Each bag has a mass of 1 kilogram. How many kilograms of rice do they have in all? Think about the story problem. What are we trying to find out?**

 STUDENTS DO: Say: How many kilograms of rice in all.

TEACHER SAY: **Yes, they want us to find how many kilograms of rice there are all together. What information do we have? I will use Calling Sticks to select some of you to identify the information provided in the story problem.**

 STUDENTS DO: Selected students share information provided in the story problem. Answers should include: each bag of rice has a mass of 1 kilogram, Fatima has 3 bags of rice, Hassan has 2 bags of rice.

TEACHER SAY: **Stand up if you think you know the answer to the problem.**

 STUDENTS DO: Stand if they know the answer.

TEACHER DO: Call on a standing student to solve the problem and explain their strategy.

 STUDENTS DO: Selected student provides the answer and explains how they solved the problem.

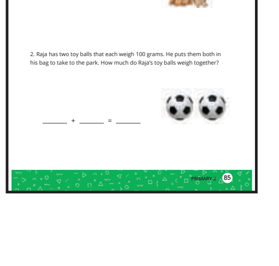
TEACHER DO: Write the addition sentence on the board: 3 kg + 2 kg = 5 kg.

TEACHER SAY: **Remember we can use the letters kg to stand for kilograms. Give yourself a pat on the back if you had 5 kilograms as the answer.**

 STUDENTS DO: Pat themselves on the back.

TEACHER SAY: **What letter we can use to stand for gram?**

 STUDENTS DO: Respond together: gm.



LESSON 53: APPLY

Directions: Read the word problem, write a number sentence, and solve to find the answer. Label your answers with gm (gram) or kg (kilogram).

1. Aisha has 1 dog that weighs 10 kilograms and 1 cat that weighs 5 kilograms. How much do both of Aisha's pets weigh together?

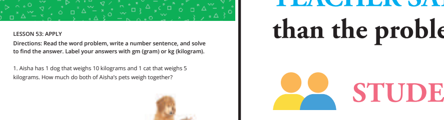
_____ + _____ = _____

2. Raja has two toy balls that each weigh 100 grams. He puts them both in his bag to take to the park. How much do Raja's toy balls weigh together?

_____ + _____ = _____

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TEACHER SAY: **Good. The problems you solve in your student book will be more challenging than the problem we just did. Take out your student book and turn to page Lesson 53: Apply.**

 STUDENTS DO: Open student book to page Lesson 53: Apply.

TEACHER DO: Place students in groups of 3 or 4, making sure there is at least one strong reader in each group to read the story problems. Those students will be the group "reader." Have students move to work with their groups.

 STUDENTS DO: After being placed in a group, move to a quiet spot in the classroom. Selected students will be the group reader.

TEACHER SAY: **Each group will have one reader. I will tell each group who their reader is today. The reader will read a story problem aloud. Then each person in the group will work by themselves to solve the problem. When everyone in the group is finished with the first problem, the reader will read the next problem aloud.**

TEACHER DO: Tell each group who the reader is for today.

TEACHER SAY: **There are four different story problems. Write the addition problem, solve it, and write your answer. Do not forget to write gm or kg after your answer.**

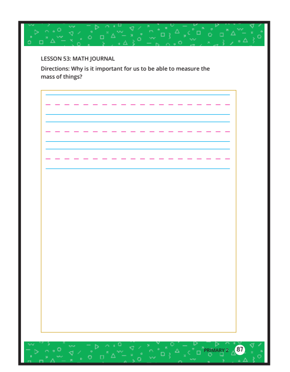
 **STUDENTS DO:** Listen to the reader read each problem aloud, and then solve the one-step story problems on their own.

TEACHER DO: As students are working, circulate around the room, offering help as needed. Allow students time to solve the problems. If time allows, use **Calling Sticks** to select students to work out the problems on the board. Otherwise, go over the correct answers with students.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: Turn to page Lesson 53: Math Journal in your student book.**

 **STUDENTS DO:** Turn to page Lesson 53: Math Journal in the student book.

TEACHER SAY: As you reflect today, think about why we measure the mass of items. Why is it important for us to be able to measure the mass of things? Think for a moment, then write your ideas on the Math Journal page.

 **STUDENTS DO:** Reflect on the journal prompts. Write their ideas in the student book.

TEACHER SAY: You all did so well today. You may put away your student book.

 **STUDENTS DO:** Put away student book.

Lesson 54 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Solve addition and subtraction story problems. • Solve story problems involving mass. • Create one-step story problems involving adding or subtracting units of mass.	• Gram (gm) • Kilogram (kg) • Mass	• Calendar Math area • 5 1-kg bags of rice with "1 kg" labels • Student book and pencil

LESSON PREPARATION
No new preparation needed.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In this lesson, students solve addition and subtraction story problems involving mass. Students strengthen and apply their skills in these mathematical concepts by creating their own mass story problems. Students swap story problems with a partner to solve one another's problems.

If you have g/kg scales or two-pan balances available, a great extension or substitute lesson would be to put students in small groups with sets of 5 or 6 items of different masses. Have the students choose 2 items and either measure or compare their masses. (See Chapter Preparation for the Teacher for detailed instruction on creating a two-pan balance.)

1.TEACHER SAY: Yesterday we solved addition story problems involving mass. Today we are going to continue practicing this skill by solving addition and subtraction problems involving grams and kilograms. Before we start, I am going to give you 1 minute to share with your Shoulder Partner everything you know about grams and kilograms. One partner will get 30 seconds. When I clap my hands, it is time for the other partner to share. Ready? Go.

 **STUDENTS DO:** Share with their **Shoulder Partner** everything they remember about grams and kilograms. Take turns with their partner.

TEACHER DO: Place 5 bags of rice in a box at the front of the room with a 1 kilogram label on each bag and a 5 kilogram label on the box.

TEACHER SAY: Great job. We have learned so much about measuring mass. I have the same 5 bags of rice that I had yesterday. Remember, each bag has a mass of 1 kilogram. Work with your Shoulder Partner to create a story problem involving these 5 bags of rice. It can be an addition problem or a subtraction problem. I will give you 2 minutes.



STUDENTS DO: Work with their **Shoulder Partner** to create a story problem about the 5 bags of rice.

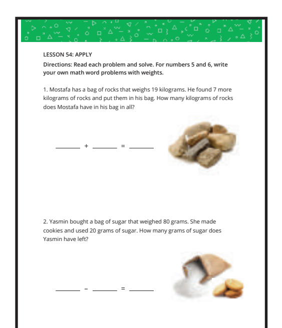
TEACHER DO: As students work, walk around and listen to their conversations. Offer help as needed. After about 2 minutes, use an **Attention Getting Signal** to refocus students.

TEACHER SAY: Raise your hand if you and your Shoulder Partner would like to share your story problem. I will ask three of you to share your story problems.



STUDENTS DO: Raise hand to volunteer. Selected students share the story problems they created. All students work to solve their friends' story problems.

TEACHER SAY: Now you will work with partners to solve some story problems in your student book. Open your student book to page Lesson 54: Apply.



LESSON 54: APPLY

Directions: Read each problem and solve. For numbers 5 and 6, write your own math word problems with weights.

1. Mostafa has a bag of rocks that weighs 19 kilograms. He found 7 more kilograms of rocks and put them in his bag. How many kilograms of rocks does Mostafa have in his bag in all?

_____ + _____ = _____

2. Yasmin bought a bag of sugar that weighed 80 grams. She made cookies and used 20 grams of sugar. How many grams of sugar does Yasmin have left?

_____ – _____ = _____

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STUDENTS DO: Open student book to page Lesson 54: Apply.

TEACHER DO: Select partners for the students. Try to include at least one strong reader in each pair. If necessary, have students work in groups of three.

TEACHER SAY: Similar to yesterday, you will see four story problems. Be sure to read each story problem carefully. Think carefully about each problem so you know whether you have to add or subtract.

After the story problems, there are two empty boxes numbered 5 and 6. This is where you will create your own story problems with your partners. The problems can be addition or subtraction problems. They can be about grams or kilograms. They just have to be story problem involving mass. Draw pictures to go with your problems. What questions do you have?



STUDENTS DO: Ask clarifying questions, if necessary. Work with partners to solve the story problems and then create two story problems related to mass.

TEACHER SAY: Make sure BOTH of you (or everyone in the group if students are working with two partners) write and draw the story problems in your student books.

TEACHER DO: Students who finish early can make a list of objects in the classroom and estimate their weights in grams or kilograms. When all students are finished, use an **Attention Getting Signal** to refocus students. Select partners to share their solutions to problems 1 through 4 with the class.



STUDENTS DO: Selected students share their answers and explain how they solved the problem.

TEACHER SAY: Wonderful. I like how you work together to solve problems and help each other.



Reflect (5 minutes)

Directions

1. **TEACHER DO:** Have students play **Hands Up, Pair Up** to find a new partner.



STUDENTS DO: Find a new partner. Sit with their new partner.

TEACHER SAY: **You and your partner will trade student books and solve each other's story problems. You will have about 5 minutes to work. When you are finished, give your partner back their student book. Then both of you will check each other's answers. Begin.**



STUDENTS DO: Solve a partner's story problems. Check the partner's answers to their own story problems.

TEACHER DO: Observe students as they work. Note students who are demonstrating understanding and students who may need additional instruction or support. At the end of the Reflect segment, have students put away the student book.



STUDENTS DO: Put away student book.

Lesson 55 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Explain that a day equals 24 hours. • Distinguish between a.m. and p.m.	• a.m. • Analog clock • Clock face • Digital clock • Hour hand • Minute hand • p.m. • Time	• Calendar Math area • Large analog clock • Large digital clock • Student book and pencil

LESSON PREPARATION

Obtain or create a large digital clock and a large analog clock to display.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students review time skills and concepts they learned in Primary 1. Important concepts today include: there are 24 hours in one day; the day is divided into two parts (a.m. and p.m.); there are digital clocks and analog clocks; the minute and hour hands on an analog clock move as the time changes; the numbers on a digital clock change as the time changes. Students play a pop-up game to reinforce understanding of a.m. and p.m.

1.TEACHER DO: Display the large analog and digital clocks where all students can see.

TEACHER SAY: The past few days we have been talking about mass. We will still talk about mass throughout the year, but today we are going to learn something new. Turn to your Shoulder Partner and tell them anything you know about these two items (point to the clocks). What are these? What do they do for us? Give me a Thumbs Up when you are ready.



STUDENTS DO: Talk to their **Shoulder Partner** about what they know about time and clocks. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER SAY: Both of these items are clocks. They are different kinds of clocks, but both tell us the time.

TEACHER DO: Point out the different parts of the digital clock as you explain.

TEACHER SAY: You may remember from last year that the digital clock shows the time of day using numbers. There is a colon (:) in the middle of the clock face. The numbers on the left side of the colon tell us the hour. The numbers on the right side of the colon tell us the minutes.

TEACHER DO: Point out the different parts of the analog clock as you explain.

TEACHER SAY: The analog clock tells us what time it is using two hands. The short hand tells us the hour. We call that hand the hour hand. The longer hand tells us the minutes. We call that hand the minute hand. These hands move around the clock as time passes and point to different numbers. These numbers tell us the time. How many numbers are on the analog clock? Raise your hand if you know.

STUDENTS DO: Raise hand to volunteer. Selected student answers the question.

TEACHER SAY: Yes, there are 12 numbers on the analog clock. Stand up if you remember how many hours there are in a day.

STUDENTS DO: Stand if they remember.

TEACHER DO: Call on standing students to share their thinking. Confirm the correct answer.

TEACHER SAY: There are 24 hours in one day. How can the analog clock tell us the correct time when there are 24 hours in a day but only 12 hours on the clock? Share your thinking with your Shoulder Partner.



STUDENTS DO: Discuss their ideas with their **Shoulder Partner**.

TEACHER DO: Use **Calling Sticks** to select a few students to share their ideas.



STUDENTS DO: Selected students share their thoughts with the class.

TEACHER DO: Reinforce students' correct answers. If no students know the answer, be sure to provide an explanation. Use the large analog clock to demonstrate.

TEACHER SAY: One day is broken up into two 12-hour parts. The parts have different names— a.m. and p.m. The a.m. half of the day is the morning time from 12 midnight to 12 noon (around lunchtime). The p.m. half of the day is the afternoon and evening time from 12 noon to 12 midnight. When we add the 12 hours in the a.m. to the 12 hours in the p.m., we get our 24-hour day. That is one of our doubles facts: 12 + 12 = 24.

2.TEACHER SAY: Let's talk about things that we do in the a.m. and p.m. We are going to play a game called Pop Up/Squat Down. I am going to show a time on the analog clock. Then I will say an activity. If you would do that activity in the a.m., you will pop up. If you would do the activity in the p.m., I want you to squat down. Let's try one.

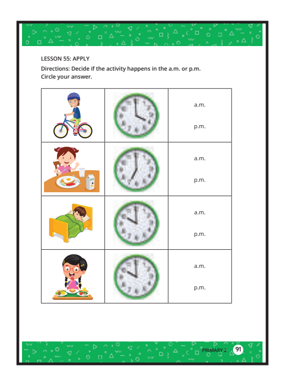
TEACHER DO: Show 7:00 on the analog clock.

TEACHER SAY: My clock shows 7:00. Remember from last year that when the minute hand is on the 12, it is a new hour. The hour hand is on the 7 so I know the time is 7:00. But the analog clock does not tell us whether that is 7 a.m. or 7 p.m. My activity is eating breakfast. If you would eat breakfast at 7 a.m., pop up. If you would eat breakfast at 7 p.m., squat down.



STUDENTS DO: Play Pop Up/Squat Down to practice a.m. and p.m.

TEACHER SAY: You would eat breakfast at 7 a.m. in the morning, so you all should have popped up. Let's try another one.



TEACHER DO: Continue the game with the following:

- Show 3:00 on the analog clock. Activity—play outside—squat down.
- Show 11:00 on the analog clock. Activity—eat lunch—stand up.
- Show 8:00 on the analog clock. Activity—go to bed—squat down.
- Show 8:00 on the analog clock. Activity—go to school—stand up.



STUDENTS DO: Play Pop Up/Squat Down to practice a.m. and p.m.

3.TEACHER SAY: Let's continue practicing a.m. and p.m. activities. Take out your student book and turn to page Lesson 55: Apply.

STUDENTS DO: Take out the student book and turn to page Lesson 55: Apply.

TEACHER SAY: **On the page you will see pictures of some activities and a clock. You will talk with your Shoulder Partner to determine if the picture is showing an activity that would be done in the a.m. or the p.m. Then circle a.m. or p.m. to show your answer.**

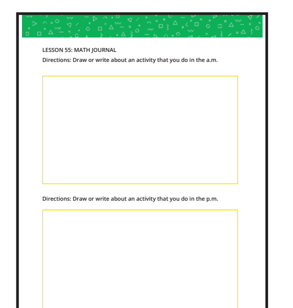

STUDENTS DO: Work with their **Shoulder Partner** to discuss each activity and decide if it would be done in the a.m. or p.m. Circle their answers.

TEACHER DO: Allow students time to complete activity. If time allows, go over correct answers together.



Reflect (5 minutes)

Directions


LESSON 55: MATH JOURNAL

Directions: Draw or write about an activity that you do in the a.m.

Directions: Draw or write about an activity that you do in the p.m.

1. **TEACHER SAY:** **Turn to page Lesson 55: Math Journal in your student book.**

STUDENTS DO: Turn to page Lesson 55: Math Journal in the student book.

TEACHER SAY: **Reflect on the activities you do each day. Think about something you do in the a.m. and something you do in the p.m. Then, write about or draw these activities on the Math Journal page.**


STUDENTS DO: Think about an activity they do in the a.m. and an activity they do in the p.m. Write about or draw the activity on the Math Journal page.

TEACHER DO: Allow students time to reflect. If time allows, select a few students to share their journal entries with the class or have students share with their **Shoulder Partners**.

TEACHER SAY: **Great work today. We will talk more about time tomorrow. Put away your student book.**


STUDENTS DO: Put away the student book.

Lesson 56 Overview

LEARNING OBJECTIVES

Students will:

- Participate in Calendar Math activities.
- Create an analog clock.
- Tell time to the hour.

PREPARATION

If possible, have real analog and digital clocks to show students.

Have materials to create a large analog clock for demonstration. See Chapter Preparation for the Teacher for detailed instructions.

Print out small analog clock faces (one per student). See Chapter Preparation for the Teacher for detailed instructions.

Gather brass brads (or another material you can use as a connector). You will need one for each student.

KEY VOCABULARY

- a.m.
- Analog Clock
- Clock face
- Digital Clock
- Half
- Hour hand
- Minute hand
- p.m.
- Time

MATERIALS

- Calendar Math area
- Student book and pencil
- Large blank analog clock face, hands, and connector (for teacher demonstration)
- Small blank analog clock faces, hands, and connectors (one per student)
- Hole punch
- Scissors
- Optional: Real analog and digital clocks
- Alternate: Teaching clock with movable hands



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In this lesson, students make their own model of an analog clock. It may take more than one math lesson, but this process helps students build a deeper understanding of the clock and telling time. It also enables them to have a clock they can personally manipulate and read. Additionally, since students fold their clocks from the 9 to the 3 and the 12 to the 6, they will have a visual reference for half and quarter hours.

1.TEACHER DO: Display an analog and digital clock.

TEACHER SAY: Yesterday we reviewed what we know about time and telling time. We looked at an analog clock and a digital clock. We saw that there are 12 numbers, or hours, written around the edges of analog clocks. We learned that there are 24 hours in a day and that the hour hand on a clock goes all the way around two times every day. We break up the day into a.m. and p.m.

The a.m. part of the day starts at midnight and goes until 12 noon, which is around the time we have lunch. Turn to your Shoulder Partner and tell them three things you do in the a.m.

STUDENTS DO: Turn to their **Shoulder Partner** and talk about things they do in the a.m.

TEACHER SAY: The p.m. starts at 12 noon and goes until midnight. What are some things you might do in the p.m.? Turn to your Shoulder Partner and tell them three things you do in the p.m.



STUDENTS DO: Turn to their **Shoulder Partner** and talk about things they do in the p.m.

TEACHER SAY: Good job. We do all kinds of things during the day at different times. Some in the a.m., or before noon, and some in the p.m. Today we are going to make our own analog clocks so that we can learn to read and write time. Look at the two clocks at the front of the room.

TEACHER DO: Point to the analog clock.

TEACHER SAY: This is an analog clock. The numbers around the clock tell us the hour. We read the time by looking at the two hands. The hands move constantly. The short hand tells us the hour. The long hand tells us the minutes.

TEACHER DO: Point to the hour hand on the clock.

TEACHER SAY: Last year we looked mostly at the short hand, which tells the hour.

TEACHER DO: Point to the minute hand on the clock.

TEACHER SAY: This is the long hand. This hand tells the minutes.

Note to the Teacher: Some clocks may have second hands, and some students may want to discuss or have knowledge about them, but for this lesson focus on hour and minute hands.

TEACHER DO: Move the hands of the analog (or teaching) clock to show 3:00.

TEACHER SAY: When it is exactly 3:00, the hour hand points to the 3 and the minute hand points to the 12. Last year, you learned how to tell time when the minute hand points directly to the 12. But the minute hand moves. It is not always at the 12. This year you will tell time to the hour and half hour.

TEACHER DO: Move the minute hand on the clock to point at the 6. Move the hour hand to point between the 3 and the 4.

TEACHER SAY: You are going to make your own clock so you can learn about both of these hands and how they work together. You will get a circle and two clock hands.

TEACHER DO: Hold up your large clock template for all students to see. Point to the lines on the circle.

TEACHER SAY: On the circle, you will notice that there are 12 lines drawn around this circle. What do you think these lines are for? Turn and Talk to your Shoulder Partner. Then give me a Thumbs Up when you are ready to share.



STUDENTS DO: Talk to **Shoulder Partner** about the lines around the circle. Give a **Thumbs Up** when ready. Selected students share their thinking.

TEACHER SAY: The 12 lines around the clock are for numbers, or hours. I am going to hand out materials for you to make your clock. Even though you will make your own clock, it is okay for you and your Shoulder Partner to help each other.

TEACHER DO: Hand out clock face templates. If the hour and minute hands have not been cut out, hand out scissors, too. Have students cut out the clock faces and hands.



STUDENTS DO: Cut out clock face and hands, if necessary.

TEACHER DO: **Model** for students how to add the numbers to their clock faces.

TEACHER SAY: **You have a blank clock face that looks like mine. I am going to pick one of the lines on the clock and write the number 1 under it.**

TEACHER DO: Write 1 under one of the lines on the clock.

TEACHER SAY: **Now you do it.**

 **STUDENTS DO:** Write the number 1 under one of the lines on their clock face.

TEACHER SAY: **Now I can keep numbering the lines around the clock until I get to 12. I want to make sure I write neatly and line up the numbers with the lines.**

TEACHER DO: Add the rest of the numbers to your clock face.

TEACHER SAY: **Now you do it.**

 **STUDENTS DO:** Write the rest of the numbers on their clock face.

TEACHER SAY: **I am going to turn my clock so the 12 is at the top. Then I will fold my clock face in half. I am going to fold it in half so that the 9 line touches the 3 line. I want to make sure the lines match up perfectly. Watch me.**

TEACHER DO: Fold your clock face in half so that the 9 touches the 3. Show students how the fold goes through the 12 line and the 6 line.

TEACHER SAY: **Now you do it.**

 **STUDENTS DO:** Fold clock face in half.

TEACHER SAY: **Nice job. Now open up your clock and look at it. You will see two parts, or two halves. We have folded the clock in half. I am going to fold my clock face in half again, but this time I am going to make the 12 line touch the 6 line. Again, I want to make sure the lines match up perfectly. Watch me.**

TEACHER DO: Fold your clock face in half so that the 12 touches the 6. Show students how the new fold goes through the 9 and 3 lines.

TEACHER SAY: **Now you do it.**

 **STUDENTS DO:** Fold clock face in half again.

TEACHER SAY: **Open your clock. Now the clock face has four sections. Now we need to put the hands on our clock. Give me a Thumbs Up if you remember something about the hands of the clock.**

 **STUDENTS DO:** Give a **Thumbs Up** to share. Selected students share what they remember about the hands of a clock.

TEACHER SAY: **There are two hands. One hand is for the hour and one is for the minutes. The hour hand is shorter. The minute hand is longer. You will see that you have one long hand and one short hand. They are labeled. I am going to punch a pole in the center of your clock and at the ends of your clock hands. I am also going to give you a brad, which you will use to connect the hands to the clock. Watch me attach the hands. Once I have punched holes in your clock and hands, you can attach your hands.**

TEACHER DO: **Model** attaching the hands. Then walk around to students to punch holes in their clocks and in the hands. Give each student a brad. When finished, help students attach the hands to their clocks, if needed.

 **STUDENTS DO:** Attach hands to clock face.

TEACHER SAY: Give me a Thumbs Up when you are ready to start using your clock.

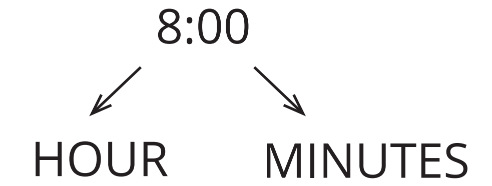
 STUDENTS DO: Give a **Thumbs Up** when ready.

TEACHER SAY: Great work. Now we all have our own analog clocks to practice telling time. Let's show a couple times on our clocks to get used to them. I will write a time on the board. You show the time on your clock. All of the times I will say today will be exact hours, like 8:00. When it is exactly 8:00, where will the minute hand be? Whisper the answer into your hands.

 STUDENTS DO: **Whisper**: on the 12.

TEACHER SAY: Yes, the minute hand will be on the 12. Let's practice. Remember, when we write time, we put the hour first and then the minutes, separated by a symbol called a colon.

TEACHER DO: On the board, write 8:00 and label.



TEACHER SAY: Show 8:00 on your clock. When you are finished give me a Thumbs Up.

 STUDENTS DO: Move hands to show 8:00 on their clocks. Give a **Thumbs Up** when ready. Selected students show the time on the teacher's large clock.

TEACHER DO: Repeat the process a few more times until the end of the Learn segment.

Note to the Teacher: If small student teaching clocks are available and you do not want to make clocks due to time or other constraints, start the lesson by having students discuss what they notice about the clock, where the minute hand is when it is exactly an hour, the length of both hands, and other observations about the analog clock. Then write a time on the board and have students show it on their clocks.

 STUDENTS DO: Read each time written on the board, show it on their own clocks, and watch as a volunteer shows it on the large teacher clock.

TEACHER SAY: Great work today making your own clocks. Put away your clocks for today. We will use them again tomorrow.

 STUDENTS DO: Put away clocks.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today you made your own analog clock and used it to tell time to the hour. We will Popcorn around the room. When we Popcorn, I choose a student to start. That student will share. Then they will Popcorn to someone else by calling on another student to share. For today's Popcorn, I want you to share one thing about clocks. It could be tips for telling time, differences between analog and digital clocks, or other information. Let's Popcorn.**

TEACHER DO: Select one student to start **Popcorn**.

 STUDENTS DO: Selected student shares one observation about clocks or time and then **Popcorns** to another student.

TEACHER DO: Continue until Reflect time is over.

TEACHER SAY: You all know a lot about clocks and telling time. Tomorrow we will use our analog clocks again, but we will talk about telling time when the minute hand moves away from the 12.

Lesson 57 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Tell time to the half hour. • Show time to the half hour on an analog clock.	• Analog clock • Clock face • Digital clock • Half hour • Half past • Hour • Hour hand • Minute hand • One half	• Calendar Math area • Student book and pencil • Large teacher clock from Lesson 56 • Students' clocks from Lesson 56 • Optional: Real analog and digital clocks • Alternate: Teaching clock with movable hands • Half-Hour Cards

LESSON PREPARATION

Print and cut out the Half-Hour Cards for students (one set for each pair of students). See Half-Hour Cards Blackline Master.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students learn how to tell time to the half hour. It is important they understand that when the time is 4:30, the minute hand is halfway around the clock and that the hour hand is halfway between the 4 and the 5. Students should also recognize that half an hour is 30 minutes (half of 60 minutes).

Due to the nature of teaching children to tell time, there is a lot of teacher-talk in this lesson. Where possible, cut sections of the lesson that students do not need and extend sections when they need more practice. Be sure to check students' levels of understanding and engagement as you move through the lesson.

1.TEACHER SAY: Yesterday we made our own analog clocks. Take out your clocks so we can use them.

 **STUDENTS DO:** Take out the clock they made in Lesson 56.

TEACHER SAY: Yesterday we used our clocks to show time to the hour. The minute hand stayed on the 12 and we moved only the hour hand to show the hour. Let's try that now. I am going to show a time on my clock. Once I am done, make your clock look the same, and when you know what time it is, give me a Thumbs Up.

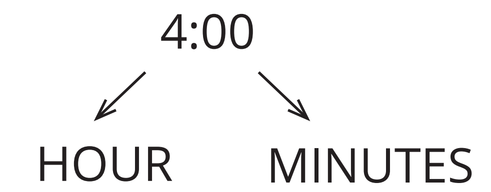
TEACHER DO: Make a time on the clock that is exactly to the hour, like 4:00.



STUDENTS DO: Make 4:00 on their clock and then give a **Thumbs Up**. Selected students share their answer.

TEACHER SAY: Yes, the time is 4:00. The minute hand is on the 12 and the hour hand is pointing directly at the 4. We write that by writing the hour first and then the minutes.

TEACHER DO: Write 4:00 on the board. Then draw arrows and write the words "hour" and "minutes" as shown.



TEACHER SAY: So far, we have not moved the minute hand around, but it moves all the time. Every hour the minute hand goes one full time around the clock, while the hour hand just moves one more hour, or number. When the time changes from 4:00 to 5:00, this is what the hands will do.

TEACHER DO: Show 4:00 and then **Model** how the minute hand moves all the way around and the hour hand just moves to 5.

TEACHER SAY: At 5:00, the minute hand is back at the 12 after making a full rotation around the clock. The hour hand has only moved from 4 to 5. There are 60 minutes in one hour. It takes 60 minutes for the minute hand to go all the way around. Let's try that moving both hands. Start with your clock at 7:00.



STUDENTS DO: Move the hands on their clock to show 7:00.

TEACHER SAY: Now move your minute hand all the way around and back to the 12 and move the hour hand from the 7 to the 8.

Note to the Teacher: This is a tricky concept since both hands move, but the hour hand moves much more slowly.

TEACHER DO: Model moving both hands to show the hour change.



STUDENTS DO: Move both hands to show the change from 7:00 to 8:00.

TEACHER SAY: Now it is 8:00. The minute hand traveled all the way around and the hour hand moved from the 7 to the 8. One hour has passed.

Sometimes the minute hand points straight up at the 12. When that happens, we know that it is exactly an "o'clock" time, such as 8:00. It is an exact hour. But what if the minute and hour hands move and the clock looks like this?

TEACHER DO: Using your large clock, move the minute hand from the 12 to the 6 slowly, showing how the hand is moving halfway around the clock. Move the hour hand to between the 8 and the 9.

TEACHER SAY: What time do you think it is when the hour hand is between the 8 and 9 and the minute hand is at the 6? Turn and Talk to your Shoulder Partner. Share your thinking.



STUDENTS DO: Turn and Talk to **Shoulder Partner** and share their thinking about the time shown on the teacher's clock.

TEACHER SAY: Remember when we folded our clocks in half? The fold went from the 12 to the 6. When the minute hand moves from the 12 to the 6, it has moved halfway around the clock. It has moved a half of an hour. Move your minute hand from the 12 to the 6.

STUDENTS DO: Move minute hand to the 6.

TEACHER SAY: This minute hand has moved halfway around the clock, from the 12 to the 6. The hour hand has also been moving. It has moved halfway between the 8 and the 9. The hour hand moves much more slowly than the minute hand. Move your hour hand to look like my clock. What hour do we think it is now?



STUDENTS DO: Move hour hand between the 8 and the 9.

TEACHER DO: Point to the hour hand.

TEACHER SAY: Raise your hand if you think the hour is still 8.



STUDENTS DO: Raise their hand if they think it is still 8.

TEACHER SAY: Raise your hand if you think the hour is 9.



STUDENTS DO: Raise their hand if they think it is 9.

TEACHER SAY: Good ideas. Some of you think 8 and some of you think 9. This can be a challenging part of telling time. The hour hand has passed 8 but has not yet arrived at 9. That means that our hour is still 8. This is like if I start on a number line and walk from 8 to 9. I am not at 9 until I get to the 9. With time, it is the same. We read the hour as the number that we are exactly at or passed until we get to the next number.

TEACHER DO: On the board draw a line as shown below. Using a finger, start at 8 and walk along the line until exactly at 9. Then stop.



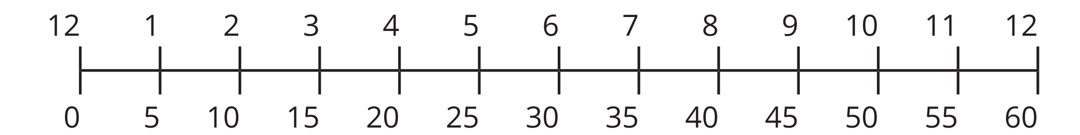
8 9

TEACHER SAY: So the hour on our clock is 8, since we are not yet at 9.

TEACHER DO: Write the first half of the time on the board (with a colon): 8:.

TEACHER SAY: Now we have to figure out how to read the minute hand. Remember that earlier I told you there were 60 minutes in an hour? It takes the minute hand 60 minutes to go all the way around.

TEACHER DO: Draw a number line counting by 5s from 0 to 60. Be sure the lines are evenly spaced.



TEACHER SAY: Let's look at this line. The numbers on the top are the numbers on the clock. The numbers on the bottom skip count by 5s from 0 to 60. We start at 0 because when the hour begins and the minute hand is exactly at 12, 0 minutes have passed. At the other end of the line is the number 60, because when a whole hour has passed and the minute hand gets back to the 12, 60 minutes have passed.

Look at your clock. When it is folded in half, what number is at the bottom of the clock? Give me a Thumbs Up when you know.

STUDENTS DO: Look at their clock to see what number is in the fold. Give a **Thumbs Up** when ready. Selected students share their answers.

TEACHER SAY: Yes, the 6 is in the middle. When the minute hand is pointing at the 6, it has traveled halfway around the clock. It has been half an hour.

TEACHER DO: Point at the 6 on the number line.

TEACHER SAY: You count the numbers under the number line, while I count the numbers above the number line.

 **STUDENTS DO:** Count by 5s from 0 to 30 as the teacher points to and counts from 0 to 6.

TEACHER SAY: So, 6 is halfway around the clock. 60 minutes is a whole hour. How many minutes is a half an hour (half of 60)?

 **STUDENTS DO:** Call out: 30.

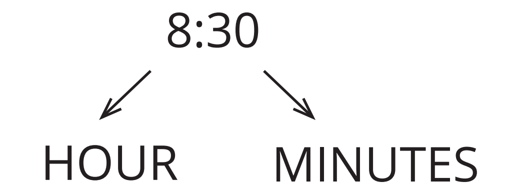
TEACHER DO: Circle 30.

TEACHER SAY: Yes, 30 is half of 60, so I have circled it. If the minute hand has traveled halfway around the clock, it has traveled 30 minutes. The hour hand is halfway between 8 and 9 and the minute hand has traveled halfway around the clock and is at the 6. The time is 8:30. Say that with me.

 **STUDENTS DO:** Say 8:30 with the teacher.

TEACHER DO: Write the minutes on the board so the time reads 8:30.

TEACHER DO: Add labels to 8:30 as shown.



TEACHER SAY: Because the minute hand has traveled halfway around the clock, we can also say the time is half past 8. Say that with me.

 **STUDENTS DO:** Say half past 8 with the teacher.

TEACHER SAY: Let's try another one. I am going to pick a card and read it to you. Show that time on your clock and then check your work with your Shoulder Partner. Give me a Thumbs Up when you are ready.

TEACHER DO: Using the card set, pick a card and read it to the group. Write on the board what the card shows for a visual reference.

Note to the Teacher: This lesson uses 3:30/half past 3 as an example. Adjust the wording of this portion of the lesson to match the time you selected.

 **STUDENTS DO:** Show the given time on their clock. Check work with **Shoulder Partner**. When done, give a **Thumbs Up**. Selected students write the time on the board.

TEACHER SAY: Nice job. The time was 3:30. That means that the hour hand is past 3 but not yet at 4. It is right in between, or halfway, between 3 and 4. The hour hand moved halfway between the hours, and the minute hand has gone halfway around the clock to the bottom, or the 6. Half of an hour has passed. Half an hour is 30 minutes, so we say 3:30.

TEACHER DO: Point to the 3:30 that the student wrote on the board. Point to the 3 and label the 3 "Hour" and the 30 "Minutes."

TEACHER SAY: For the rest of the time today you and your Shoulder Partner will practice showing to the half hour on your clocks. You will get a set of cards. Pick a card. Both of you show the time and check each other's work. Do you have any questions?

 **STUDENTS DO:** Ask any clarifying questions about the activity.

TEACHER DO: Hand out Half-Hour Cards to each pair of students.



STUDENTS DO: Pick a card. Show the time on their clock. Compare answers with their **Shoulder Partner**. Repeat until the teacher uses an **Attention Getting Signal**.

TEACHER DO: Walk around the room and observe students as they work and talk to their **Shoulder Partner**. Note students who may need additional instruction or practice. Be sure students are moving the hour hand as well as the minute hand. When the Learn time is over, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: I saw so much great math work around the room. Stack up your cards, please. I will collect them while you put away your clocks. Take out your student book, and give your Shoulder Partner a high five.



STUDENTS DO: Take out student books, put away clocks, and give **Shoulder Partner** a high five.

TEACHER DO: Collect card sets from students.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Turn to page Lesson 57: Math Journal in your student book.**



STUDENTS DO: Turn to page Lesson 57: Math Journal in the student book.

TEACHER SAY: Today we learned how to tell time to the half hour. On the Math Journal page, write about or draw something you learned today about telling time to the half hour.



STUDENTS DO: Write about or draw something they learned about telling time to the half hour.

TEACHER DO: Give students 2 to 3 minutes to work. If time allows, select a few students to share their journal entries with the class or have students share with their **Shoulder Partners**.

TEACHER SAY: Great work today. We will do more work with reading and writing time tomorrow. Put away your student book.



STUDENTS DO: Put away student book.



Lesson 58 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Read time to the hour and half hour. • Write time to the hour and half hour. • Match digital times to analog times.	• Analog clock • Clock face • Digital clock • Half hour • Half past • Hour • Hour hand • Minute hand • One half	• Calendar Math area • Student book and pencil • Sets of Time Matching Cards (one set per pair of students) • Student clocks (from Lesson 56) • Optional: Real analog and digital clocks • Alternate: Teaching clock with movable hands

LESSON PREPARATION

Print and cut out sets of Time Matching Cards (one set for each pair of students). See Time Matching Cards Blackline Master.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1. **TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

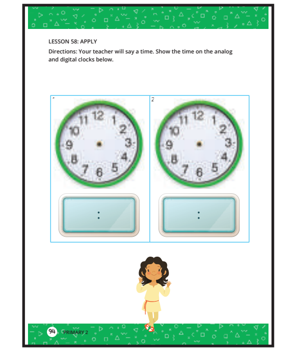
Note to the Teacher: In today's lesson, students continue to practice reading and writing time to the hour and half hour. They match analog clocks to digital clocks showing the same time.

1. **TEACHER DO:** Display the large model clock you made along with a real (or teaching) analog clock and digital clock.

TEACHER SAY: Yesterday we learned about the minute hand and how it moves around the clock. When the minute hand is pointing at the 12 and the hour hand is pointing directly at a number like 4, it is exactly an hour, such as 4:00. No minutes have passed. It is 4:00. When the minute hand is pointing down at the 6, it has moved halfway around the analog clock. An hour has 60 minutes. Half of 60 is 30, and the minute hand has gone halfway around the clock, so the time is now 4:30, and the hour hand is between the 4 and the 5.

TEACHER DO: Move the hands on the clock to show the times you are discussing.

TEACHER SAY: Today we are going to continue to practice reading and writing time to the hour and the half hour. Take out your clock and your student book and turn to page Lesson 58: Apply.



STUDENTS DO: Take out clock and student book and open to page Lesson 58: Apply.

TEACHER SAY: There are two analog clocks at the top of the page. Under each of them is a digital clock. We will practice reading and writing the time for these clocks together, and then you will practice on your own.

I will say a time. You will show the time on your clock. Then you will draw the hands on the first clock in your student book to show the time. Remember that the hour hand is shorter than the minute hand. When you have finished, give me a Thumbs Up.

TEACHER DO: State an hour time, such as 2:00. Wait for students to show it on their clock and draw the hour and minute hands in the student book. Then choose a student to show the time on your large clock.



STUDENTS DO: Show 2:00 on their clock and then draw the hour and minute hands in the student book. Give a **Thumbs Up** when finished. Selected students show the time on your large clock.

TEACHER SAY: Good, the clock shows 2:00. The minute hand is pointing up to the 12 and the hour hand is at the 2. In your student book, record the digital time that this analog clock shows. Give me a Thumbs Up when you are done.



STUDENTS DO: Record 2:00 in the digital box. Give a **Thumbs Up** when done. Selected student writes 2:00 on the board.

TEACHER SAY: Great. I gave you a time. You showed the time on your clock, showed the time on the clock in your student book, read the time, and wrote the time. Let's try one more together before we move on. Show 9:30, or half past 9, on your clock. Then draw in the hands on the second clock in your student book. Give me a Thumbs Up when finished.



STUDENTS DO: Show 9:30 on their clock and then draw the hands in the student book. Give a **Thumbs Up** when finished. Selected students show 9:30 on the large clock and write 9:30 on the board.

TEACHER DO: Assist the students as needed or allow them to ask other students for help. Make sure the hour hand is pointing between 9 and 10 and the minute hand is pointing at the 6. Explain the position of the hour and minute hands to reinforce the concept for students who need additional support.

2.TEACHER SAY: For the rest of the math time today, you will play Time Matching with a partner. You will get a set of game cards. Some cards have an analog clock and some cards have digital times. Some clocks will have exact hours and some will have half hour times. With your partner, lay out the cards and match the analog times to the digital times.

TEACHER DO: Show an example of the cards to the class.

TEACHER SAY: We will use Hands Up, Pair Up to get partners today. Once you have found your partner, go sit with them. I will bring you a set of game cards and you can start matching the analog clock times to the digital times. You can use your own clocks for help if you need to.



STUDENTS DO: Use **Hands Up, Pair Up** to find a partner. Move to sit with their partner.

TEACHER DO: Hand out game cards to partners.



STUDENTS DO: Work with partner to match analog clock times to digital times.

TEACHER DO: Walk around the room, observing students as they work. Make note of students who may need additional instruction or practice. If partners finish finding all the matches and there is time left, you can have them play again or quiz each other: one student shows a digital time card and the other student makes the time on their clock. When Learn time is over, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: Nice work today. I will collect your game cards. Give your partner a high five and return to your seats. You can put away your student book and pencil.

TEACHER DO: Collect game cards.

 **STUDENTS DO:** Return to seats and put away student book and pencil.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Today we practiced matching times on analog and digital clocks. Some of our analog clocks had half hours and some were exact hours, so our minute hand was either on the 12 or the 6. But what if the minute hand was on another number besides 12 or 6? What if the clock looked this this, with the minute hand on the 3?**

TEACHER DO: On the model clock, show 4:15.

TEACHER SAY: Turn to your Shoulder Partner and talk about what time you think the clock is showing.

 **STUDENTS DO:** Turn to **Shoulder Partner** and discuss what time the clock is showing.

TEACHER DO: Use **Calling Sticks** to choose 3 to 5 students to share with the group.

 **STUDENTS DO:** Selected students share their thinking.

TEACHER SAY: I heard a lot of interesting ideas. I think you are ready for a challenge. In our next math lesson, we are going to talk about what happens when the minute hand is not on the 12 or on the 6.

Lesson 59 Overview

LEARNING OBJECTIVES	KEY VOCABULARY	MATERIALS
Students will: • Participate in Calendar Math activities. • Read time to the quarter hour. • Write time to the quarter hour.	• Analog clock • Digital clock • Half hour • Half past • Hour • Hour hand • Minute hand • One half • Quarter hour	• Calendar Math area • Student book and pencil • Clocks that students made in Lesson 56 • Analog and digital clock • Alternate: Teaching clocks with movable hands and movable digits

LESSON PREPARATION

Display a large poster of the clock face in the student book on page Lesson 59: Apply. See Chapter Preparation for the Teacher for detailed instructions.



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.TEACHER DO: Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.



STUDENTS DO: Selected student leads Calendar Math. All students participate.

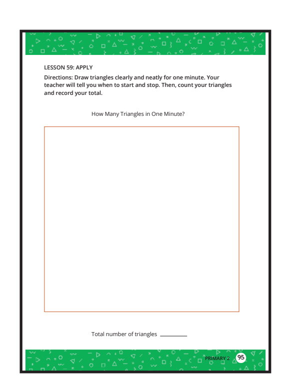


Learn (40 minutes)

Directions

Note to the Teacher: In this lesson, students will learn that :15 is a quarter after the hour. They will also begin to learn how minutes are counted by 5s around the clock. Students have been counting by 5s during Calendar Math, so they should be able to transfer that skill to telling time.

Students often want to read the time 4:15 (on an analog clock) as "4:3," so it is important to very explicit in showing the circled times for the minutes. It also helps students to have an understanding of how long 1 minute is when they are thinking about how long 60 minutes is.



LESSON 59: APPLY

Directions: Draw triangles clearly and neatly for one minute. Your teacher will tell you when to start and stop. Then, count your triangles and record your total.

How Many Triangles in One Minute?

Total number of triangles ________

1.TEACHER DO: Draw a box on the board and label it How Many Triangles in One Minute? It should look like page Lesson 59: Apply.

TEACHER SAY: Yesterday we practiced telling and writing time to the hour and half hour. During Reflect, we looked at a clock where the minute hand was not at the 12 or the 6. It was pointing at the 3. We shared our ideas about what time we thought that might be. Today we are going to discuss that idea. What time is it when the minute hand is pointing to another number on our analog clock?

First, we are going to talk about the minute hand a little and get an idea of how long one minute is. Who remembers how many minutes are in an hour? Tell to your Shoulder Partner.



STUDENTS DO: Tell their **Shoulder Partner**.

TEACHER SAY: There are 60 minutes are in one hour. Let's see how long a minute is. Open your student book to page Lesson 59: Apply. You will see a box that is labeled How Many Triangles in One Minute? I have drawn one on the board.

 **STUDENTS DO:** Open student book to the page for Lesson 59.

TEACHER SAY: When I say start, we will draw triangles in the box for 1 minute. When I say stop, you will stop drawing and start counting how many triangles you drew. Your triangles need to be clear and neat, so do not rush. Make sure they look like triangles with 3 straight sides. Give me a Thumbs Up if you understand the directions and are ready to go.

 **STUDENTS DO:** Give a **Thumbs Up** when ready. When given the signal to start, draw triangles clearly and neatly for 1 minute. Stop when the minute is up.

TEACHER DO: Give a signal to start and keep track for 1 minute, drawing triangles in the box on the board while students are drawing triangles in the student books. Give a signal to stop.

TEACHER SAY: Wow, that was a lot of triangles. I am going to count mine. I think that since there are a lot of triangles, I will group them by 5s. I will circle each group of 5 and then I will know how many triangles I have drawn.

TEACHER DO: Model circling groups of 5 and counting by 5s (and leftover 1s) to find the total.

TEACHER SAY: Group your triangles into sets of 5. Then count how many triangles you drew in 1 minute. Write the total in your student book.

 **STUDENTS DO:** Group triangle into sets of 5. Count triangles and record total.

TEACHER SAY: Nice job counting your triangles. I drew _____ triangles in 1 minute. That really helped me understand how long a minute is. It helps to know that when we are working with time.

It takes 30 minutes for the minute hand to move to the 6 and make a half hour and 60 minutes for the minute hand to move to the 12 and make one whole hour. But what about when the minute hand only moves to the 3?

TEACHER DO: Show 4:15 on your large (or teaching) clock.

TEACHER SAY: Look at the clock in your student book.

 **STUDENTS DO:** Look at the clock in the student book.

TEACHER DO: Point to the large clock that shows 4:15.

TEACHER SAY: The clock in your student book shows the same time as my clock. The hour hand is a little past 4 and the minute hand is on the 3. In your student book, you can see that next to each hour number there are circled numbers next to each number on the clock. Analog clocks do not usually have these, but these numbers will help us to understand how to read the minute hand. Turn to your Shoulder Partner and talk about what you notice about the numbers around the clock. Give me a Thumbs Up when you have an idea to share.

 **STUDENTS DO:** Talk to **Shoulder Partner** about their observations about the numbers around the outside of the clock. Give a **Thumbs Up** when they are ready. Selected students share their thinking.

TEACHER SAY: Yes, these numbers count by 5s. Let's count together as we point at each circle.

 **STUDENTS DO:** Skip count by 5s to 60 with the teacher.

TEACHER SAY: Each of the circles that we counted is lined up with a number on the clock. Five is lined up with the 1. Ten is lined up with the 2. Fifteen is lined up with the 3, and so on. These circled numbers represent minutes and will help us think about the minutes that have passed.

Under the 6, you can see a 30 for the 30 minutes that have passed when the minute hand points to the 6. Look at the number 3 on the clock. The minute hand is pointing to it. What number is in the circle outside the 3? Whisper it into your hand.



STUDENTS DO: **Whisper**: 15.

TEACHER SAY: **Yes, there is a 15 in the circle connected to the 3. This means that the minute hand has moved to the 3, and it took 15 minutes to get there. The hour is still 4, since we remember that it will be 4 all the way until the hour hand is exactly on the 5. It is 4 the whole time the hand it is in the space between 4 and 5.**

TEACHER DO: Point to this space so students can see that it stays in the 4 hour until the hand is at the 5.

Note to the Teacher: This is a challenging concept and one that needs to be modeled clearly and repeatedly. Show the students the space between the 4 and the 5. This entire space is "owned" by the 4.

TEACHER SAY: **The time on this clock is 4:15.**

TEACHER DO: Write the time on the board by the large clock.

TEACHER SAY: **You say the time with me.**



STUDENTS DO: Repeat the time with the teacher: 4:15.

TEACHER SAY: **I wrote the time 4:15 on the board. The hour is 4 and the minutes are 15. The minute hand has traveled 15 minutes from 4:00. Record 4:15 under the clock in your student book.**



STUDENTS DO: Record 4:15 in the student book.

TEACHER SAY: **Let's practice some more. Keep out your student book so you can see the numbers in the circles, and take out your clock. We will do as many as we can before time is up for math today.**



STUDENTS DO: Take out their clock.

TEACHER SAY: **I am going to say a time and you will show that time on your clock. Once you are done, compare your clock with your Shoulder Partner's clock. Use the circles to help you think about where the minute hand should go on your clock. When you have made the time, give me a Thumbs Up.**

TEACHER DO: Say a time that is to the quarter hour, such as 7:15.



STUDENTS DO: Show 7:15 on their clock. Compare work with **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students show 7:15 on the large teacher clock.

TEACHER DO: As you confirm the time, touch the 1 and say 5, the 2 and say 10, and the 3 and say 15.

TEACHER SAY: **Good job. The hour hand is a little past the 7 and the minute hand is pointing at the 3, so 5, 10, 15 minutes. This clock shows 7:15.**

TEACHER DO: Use **Calling Sticks** to select another student to write the time on the board.



STUDENTS DO: Selected student writes 7:15 on the board.

TEACHER SAY: **Let's try another one. Look at the clock in your student book and think: What will the clock look like at 5:45? Show that time on your clock, then check your work with your Shoulder Partner. When you are done, give me a Thumbs Up.**



STUDENTS DO: Show 5:45 on their clock and then give a **Thumbs Up**. Check work with their **Shoulder Partner**. Give a **Thumbs Up** when ready. Selected students show 5:45 on the

large teacher clock and write the digital time on the board.

TEACHER SAY: Nice job. At 5:45, the hour hand is past the 5 and the minute hand is at the 45. I can count by 5s around the clock. Count with me to 45 minutes.

TEACHER DO: While counting, touch each number on the class clock: Touch 1 and say 5, 2 and say 10, and so on, doing the same until you touch the 9 and say 45.



STUDENTS DO: Count along by 5s to 45.

TEACHER DO: For the rest of Learn time, repeat the process of saying a time to either :15 or :45 and have students show the time on their clock, check their work with their **Shoulder Partner**, and give a **Thumbs Up** when ready. Discuss as a group.



STUDENTS DO: Show times on clock, check work with their **Shoulder Partner**, and give a **Thumbs Up** when ready. Selected students show the time on the large teacher clock and write the digital time on the board.

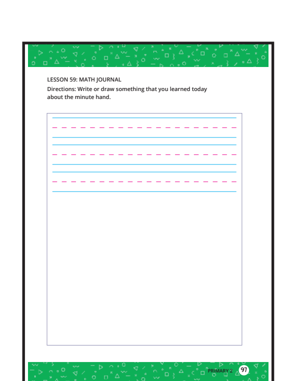
Note to the Teacher: For students who are demonstrating understanding: Put them in groups of 3 to 5 to continue to practice on their own. One student says a time that is either :15 or :45. The other students show the analog time on their clocks and record the digital time on a sheet of paper. The student who said the time checks answers and all students make sure they agree. The students in the group rotate being the leader. For students who are struggling: Continue to work with these students, supporting them as they show times and discuss where the hour and minute hand are for :15 and :45 times.

TEACHER SAY: Great work today showing some new times where we had to read the minute hand counting by 5s. Put away your clock and turn to the Reflect section in your student book.



Reflect (5 minutes)

Directions



1. **TEACHER SAY: Turn to page Lesson 59: Math Journal in your student book.**



STUDENTS DO: Turn to page Lesson 59: Math Journal in the student book.

TEACHER SAY: Today we looked at times where the minute hand was not at the 6 or the 12. Reflect on your learning today. Then, in the Math Journal section of your student book, write about or draw something that you learned today about the minute hand.



STUDENTS DO: Write about or draw something they learned about the minute hand.

TEACHER DO: Give students 2 to 3 minutes to write or draw something they learned. If time allows, select a few students to share with the class or have students share with their **Shoulder Partners**.

TEACHER SAY: Great work today. We will continue to work on reading and writing times in our next math lesson. Put away your student book for today.



STUDENTS DO: Put away student book.

Lesson 60 Overview

LEARNING OBJECTIVES
Students will: • Participate in Calendar Math activities. • Read time to the quarter hour. • Write time to the quarter hour. • Match analog times to the quarter hour to their digital and written forms.

PREPARATION
No new preparation needed.

KEY VOCABULARY
• Analog clock • Digital clock • Half hour • Half past • Hour • Hour hand • One half • One quarter • Minute hand • Quarter • Quarter past • Quarter to

MATERIALS
• Calendar Math area • Student book • Large teacher clock from Lesson 56 • Student clocks from Lesson 56 • Crayons or colored pencils • Analog and digital clock • Alternate: Teaching clocks with movable hands and movable digits



Calendar Math (15 minutes)

Directions

Note to the Teacher: Refer to Lesson 20 for detailed instructions. Refer to Lesson 24 for abbreviated instructions.

1.**TEACHER DO:** Use the **Calling Sticks** to select one student to lead Calendar Math. Facilitate the Calendar Math activities.

 **STUDENTS DO:** Selected student leads Calendar Math. All students participate.



Learn (40 minutes)

Directions

Note to the Teacher: In today's lesson, students explore a clock that has been divided into quarters to help them understand the concept of a quarter after and a quarter to. This concept of quarter time is challenging, and the visual image of their folded clocks helps to build the conceptual connection between the word "quarter" and why we refer to 4:15 as a quarter after the hour and 4:45 as a quarter to the hour.

1.**TEACHER SAY:** **Yesterday we experienced how long a minute is and then we looked at times where the minute hand was not pointing at 12 or at 6. We talked about how the minute hand moves around the clock and that we can use skip counting by 5s to help us figure out the time. Today we are going to look again at times when the minute hand is on the 3 or the 9. Take out your clock and your crayons.**

 **STUDENTS DO:** Take out clock and crayons.

TEACHER SAY: **When we made our clocks, we folded them in half twice, first by touching the 9 to the 3 and then by touching the 12 to the 6. When we folded our clocks, we created four sections on the clock face. Give me a Thumbs Up if you see four sections on your clock.**

 **STUDENTS DO:** Give a **Thumbs Up** if they see the four sections on their clock.

TEACHER DO: Use your large clock to help students see the four quarters of the clock.

TEACHER SAY: The first section goes from 12 to 3. The second section goes from 3 to 6. Raise your hand if you can tell me where the next section goes.

 **STUDENTS DO:** Raise hand to volunteer. Selected students share their answers.

TEACHER SAY: Yes, the third section goes from 6 to 9. What about the fourth section? Raise your hand if you know.

 **STUDENTS DO:** Raise hand to volunteer. Selected students share their answer.

TEACHER SAY: Yes, the fourth section goes from 9 to 12. Mathematicians use the word QUARTER to talk about one part of something that been divided into four equal parts, like our clocks. Say the word quarter with me.

 **STUDENTS DO:** Say: quarter.

TEACHER SAY: Wonderful. That is a new vocabulary word we will use today as we tell time. Choose four crayons. You will use them to color each section of your clock. Try to choose a light color or make sure you color lightly.

TEACHER DO: **Model** selecting four colors and coloring in one quarter of your clock. Have students color each quarter of their clock. Make sure they use a different color for each quarter. As students are coloring, color in the remaining three quarters of your clock.

 **STUDENTS DO:** Color in each quarter of their clock.

2.TEACHER SAY: We have talked about how the minute hand moves around the clock. We also learned that when the minute hand goes from the 12 to the 6, it has moved halfway around the clock.

TEACHER DO: Use your large clock to show the minute hand moving from 12 to 6.

TEACHER SAY: My minute hand has moved through the first half of the circle, so we can say that the time is half past an hour. We know this means that 30 minutes have passed. Let's talk about when the minute hand is not on the 6 or 12. First, let's make our clocks show 2:00.

TEACHER DO: Show 2:00 on your large clock.

 **STUDENTS DO:** Show 2:00 on their clock.

TEACHER SAY: Now, let's move our minute hands to point to 3.

TEACHER DO: **Model** moving the minute hand slowly to 3.

 **STUDENTS DO:** Move the minute hand on their clock from the 12 to the 3.

TEACHER SAY: The minute hand has moved through one quarter of an hour. It moved through just one colored quarter. Give me a Thumbs Up if you know how many minutes have passed when the minute hand is at the 3. Remember, you can count by 5s to find out.

 **STUDENTS DO:** Give a **Thumbs Up** if they know the answer. Selected student answers the question.

TEACHER SAY: Yes, when the minute hand is pointing at the 3, 15 minutes have passed.

TEACHER DO: Touch the 1 and say 5, the 2 and say 10, and the 3 and say 15.

TEACHER SAY: The time is 2:15. Since the minute hand has moved through one quarter of the clock, so we can also say it is a quarter after 2. Watch me show a quarter after 10 on my clock.

Then you show the same time on your clock.

TEACHER DO: Show 10:15 on the large clock.

 **STUDENTS DO:** Watch the teacher and then show 10:15 on their clock.

TEACHER SAY: The minute hand has moved one quarter of the way around the clock. We can say the time on this clock shows 10:15 or a quarter after 10. Repeat that with me.

TEACHER DO: As students are repeating, point to the quarter that has passed on the colored clock.

 **STUDENTS DO:** Say: 10:15 or a quarter after 10.

TEACHER SAY: Let's practice another one. Move the hands on your clock to show 7:00.

 **STUDENTS DO:** Show 7:00 on their clock.

TEACHER SAY: Good. Now make your clock show a quarter after 7. When you are finished, hold up your clock so we can all see.

 **STUDENTS DO:** Show 7:15 on their clock. Hold up clock.

TEACHER SAY: Great. Your clocks look like this.

TEACHER DO: Show 7:15 on the class clock.

TEACHER SAY: You moved your minute hand one quarter, and it is pointing at the 3. The hour is 7 but a little past 7 since it is slowly moving toward 8:00. The time is 7:15 or a quarter past 7. Let's now look at when the minute hand moves from 12 to 9. First, let's make our clocks show 6:00.

TEACHER DO: Show 6:00 on your large clock.

 **STUDENTS DO:** Show 6:00 on their clock.

TEACHER SAY: Now, let's move the minute hand from the 12 to the 9.

TEACHER DO: Move the minute hand on the large clock from 12 to 9.

 **STUDENTS DO:** Move the minute hand on their clock from the 12 to the 9.

TEACHER SAY: Give me a Thumbs Up if you know how many minutes have passed when the minute hand is at the 9. Remember, you can count by 5s to find out.

 **STUDENTS DO:** Give a **Thumbs Up** if they know the answer. Selected student answers the question.

TEACHER SAY: When the minute hand is pointing at the 9, 45 minutes have passed.

TEACHER DO: Touch the 1 and say 5, the 2 and say 10, and so on until you get to the 9 and say 45.

TEACHER SAY: The time is 5:45. The minute hand moved from the 12 to the 9. Talk to your Shoulder Partner about how many quarters the minute hand moved. Wiggle your fingers when you think you know.

 **STUDENTS DO:** Talk to their **Shoulder Partner** about how many quarters the minute hand moved. Wiggle their fingers when ready. Selected students share their thinking.

TEACHER SAY: The minute hand has moved three-quarters of an hour.

TEACHER DO: Use the large clock to show students that the minute hand moved through three quarters.

TEACHER SAY: Now talk to your Shoulder Partner about how many more quarters the minute hand has to move until it is back at the 12. Touch your nose when you think you know.

 **STUDENTS DO:** Talk to their **Shoulder Partner** about how many more quarters the minute hand has to move. Touch their nose when ready. Selected students share their thinking.

TEACHER SAY: Yes, the minute hand has only one quarter to go until it is back at the 12. One way to say the time showing on our clocks is a quarter to the hour, or a quarter to 6. Say that with me.

 **STUDENTS DO:** Repeat with teacher: a quarter to 6.

TEACHER SAY: Good. I am going to show a time on my clock. You show the same time on your clock.

TEACHER DO: Show 3:45 on the large clock.

 **STUDENTS DO:** Show 3:45 on their clock.

TEACHER SAY: We know that the hour is not yet 4, because the hour hand has not gotten to it yet. It is still in the space between the 3 and the 4. The hour is still 3. It has a quarter to go to be 4. Lean and Whisper what you think the minutes are. Give a Thumbs Up if you remember how many minutes have passed when the minute hand is pointing at the 9.

 **STUDENTS DO: Lean and Whisper**: 45

TEACHER SAY: Yes, 45 minutes have passed, so the time is 3:45, or a quarter to 4. We can count by 5s around the clock to the 9. Count with me.

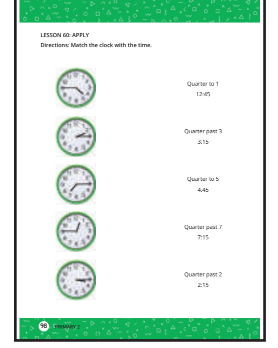
 **STUDENTS DO:** Count by 5s to 45 on their clock.

TEACHER SAY: Good. Let's try one more. Show a quarter to 8 on your clock. When you are done, hold your clock up for others to see.

 **STUDENTS DO:** Show the time 7:45 on their clock. Hold up clock when finished.

TEACHER DO: Take note of students who are struggling and those who seem to be understanding a quarter past and a quarter to. Use **Calling Sticks** to select students to show 7:45 on the large clock and write 7:45 on the board.

TEACHER SAY: Nice work. The time is not yet 8:00, so the hour will be 7 and the minute hand will be on the 9, so 7:45.



Let's practice more in our student books. Turn to page Lesson 60: Apply. You will see some clocks on one side of your page and some times and words on the other side. You will work independently to match the analog clocks on one side of the page to the digital times and words on the other side of the page. Draw lines to show your matches. When you are finished, check your answers with your Shoulder Partner. Do you have any questions?

STUDENTS DO: Ask clarifying questions, if needed. Then work independently for the rest of the Learn time, matching the analog clocks to the digital times and words. Check work with their **Shoulder Partner**.

TEACHER DO: Walk around the room, observing students as they work. Take note of students who may need additional instruction and support and those who may be able to help their peers. If students finish early, they can work together to show :15 or :45 times on the clock, and then see if their **Shoulder Partner** can tell the time using the words "a quarter after" or "a quarter to." When Learn time is over, use an **Attention Getting Signal** to bring the group back.

TEACHER SAY: Good work today telling time. I am very proud of you. Put away your clock and crayons, but keep your student book out.

 **STUDENTS DO:** Put away clock and crayons.



Reflect (5 minutes)

Directions

1. **TEACHER SAY: Turn to page Lesson 60: Math Journal in your student book.**

 **STUDENTS DO:** Turn to page Lesson 60: Math Journal in the student book.

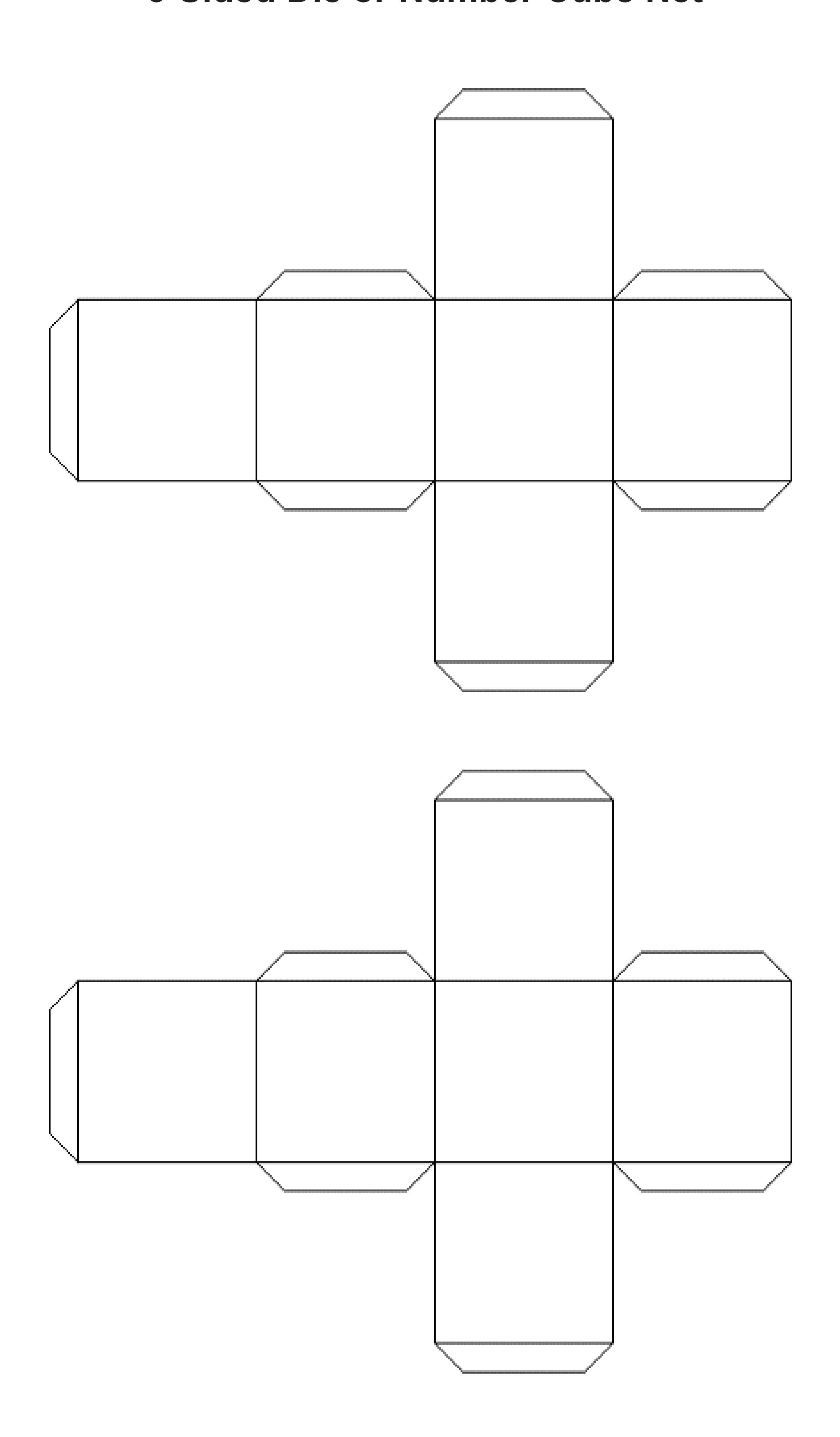
TEACHER SAY: You have learned so much in just a few days. You have learned about a.m. and p.m., how many hours are in a day, how to read time to the half hour and quarter hour, and how to write time. You have learned many new vocabulary words. That is a lot. We will continue to practice telling time all year, but I want you to reflect on your learning. What is something you are proud of learning about time? What is something you are still working on learning? Write your thoughts on your Math Journal page.

 **STUDENTS DO:** Reflect on their learning. Write about or draw something they are proud of learning and something they are still working on.

TEACHER DO: If time allows, have 2 or 3 students share their journal entries with the class. At the end of the Reflect segment, have students put away the student book.

 **STUDENTS DO:** Put away the student book.

6-Sided Die or Number Cube Net



Find Your Partner Game Cards

591	500 + 90 + 1
736	700 + 30 + 6
128	100 + 20 + 8
457	400 + 50 + 7

274	200 + 70 +4
395	300 + 90 + 5
613	600 + 10 + 3
928	900 + 20 + 8

849	800 + 40 + 9
176	100 + 70 + 6
343	300 + 40 + 3
519	500 + 10 + 9

763	**700 + 60 + 3**
825	**800 + 20 + 5**
496	**400 + 90 + 6**
226	**200 + 20 + 6**

I Have… Who Has? Game Cards

I have 224. Who has 300 + 50 + 3?	I have 353. Who has 400 + 20 + 1	I have 421. Who has 600 + 90 + 9
I have 699. Who has 700 + 80 + 3?	I have 783. Who has 500 + 20 + 9?	I have 529. Who has 500 + 10 + 3?
I have 513. Who has 200 + 60 + 6?	I have 266. Who has 700 + 40 + 5?	I have 745. Who has 100 + 20 + 3?
I have 123. Who has 800 + 70 + 6?	I have 876. Who has 900 + 40 + 2?	I have 942. Who has 600 + 50 + 8?
I have 658. Who has 400 + 40 +1?	I have 441. Who has 300 + 60 + 3?	I have 363. Who has 100 + 50 + 8?
I have 158. Who has 500 + 40 + 2.	I have 542. Who has 200 + 40 + 5?	I have 245. Who has 300 + 10 + 5?

I have 315. Who has 800 + 60 + 9?	I have 869. Who has 600 + 90 + 8?	I have 698. Who has 900 + 80 + 6?
I have 986. Who has 400 + 6?	I have 406. Who has 200 + 8?	I have 208. Who has 900 + 40?
I have 940. Who has 600 + 30?	I have 630. Who has 500 + 7?	I have 507. Who has 900 + 90 + 9?
I have 999. Who has 400 + 40 + 4?	I have 444. Who has 700 + 70 + 7?	I have 777. Who has 200 + 20 + 4?
I have _______. Who has _______________?	I have _______. Who has _______________?	I have _______. Who has _______________?
I have _______. Who has _______________?	I have _______. Who has _______________?	I have _______. Who has _______________?
I have _______. Who has _______________?	I have _______. Who has _______________?	I have _______. Who has _______________?

Number Comparison Cards

382	386
689	938
740	382
386	689
938	740

Number Comparison Cards 2

62	91
47	62
91	47
62	91
47	

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